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Described as an "at-risk" population, student-athletes are predisposed to mental health distress due to the various demands associated with their athletic status (Pinkerton, Hinz, & Barrow, 1987; Ferrante & Etzel, 2009). The National Athletic Training Association, (Neal et al., 2013) in their plan for referral of student-athletes to psychological services, reported that the stressors associated with balancing academic and athletic responsibilities might trigger or exacerbate psychological concerns. In fact, researchers have reported that 10-15% of student-athletes experience psychological distress that warrants counseling services (Hinkle, 1994), an estimation that has been described as "conservative" (Watson, 2005). Although an area of clinical practice entitled, "sports counseling," exists in theory, counselors have little clarity about the unique and specific mental health needs of athletes and how they may provide optimal services to this population.

Emotion regulation, a construct primarily discussed in sport as a key factor in optimal performance (e.g. Uphill, McCarthy, & Jones, 2009), has yet to be discussed as a significant influence on factors of student-athlete mental health, including the reported high prevalence of alcohol use and alcohol-related consequences (e.g. Nelson & Wechsler, 2001; Rexroat, 2014), aggression (e.g. Boeringer, 1999; Crossett, Benedict, and McDonald, 1995), and psychological distress (e.g. Storch, Storch, Killiany, & Roberti, 2005) among student-athletes. Attachment theorists have determined that one's

conscious and unconscious ability to regulate emotions from infancy to adulthood is heavily influenced by one's experiences in close relationships (Diamond & Aspinwall, 2003; Cassidy, 1994; Sroufe & Waters, 1977). According to Davis & Jowett (2014; 2013), the coach-athlete relationship is indicative of an attachment bond; however, researchers have yet to determine the influence of the coach-athlete attachment relationship on an athlete's ability to regulate emotions.

The purpose of this study was to: (a) validate and confirm the factor structure of Davis and Jowett's (2013) Coach-Athlete Attachment Scale (CAAS); (b) test the overall fit of a hypothesized model of student-athlete emotion regulation, and (c) determine the degree to which student-athlete emotion regulation mediates coach-athlete attachment and aggression, alcohol use, and psychological distress. The hypothesized model of student-athlete emotion regulation was founded upon an understanding of Attachment Theory as the developmental pathway to adaptive adult emotion regulation. It was posited that emotion regulation would mediate the relationship between coach-athlete attachment and prevalent, negative factors of mental health distress among student-athlete populations.

Confirmatory Factor Analysis and Path Analysis were utilized to confirm the factor structure of the CAAS and test a hypothesized model with a sample of 189 NCAA Division I student-athletes. With a limited sample size, the model provided a marginal fit for the data. Further research involving the CAAS is necessary to establish validity of the avoidance scale specifically. A revised model improved model fit, although the resulting model still only provided a marginal fit for the data. Still, difficulties in emotion

regulation fully mediated the relationship between coach-athlete attachment anxiety and aggression and partially mediated coach-athlete attachment anxiety and alcohol use consequences as well as coach-athlete attachment anxiety and psychological distress. Implications for counselors, counselor educators, and future research were discussed after data analysis was completed. The findings of the study provide initial evidence that the coach-athlete relationship and subsequent experiences of emotion regulation may have a direct influence on individual psychological distress. Further, athletics programs should consider utilizing individual counseling that targets difficulties in emotion regulation as a way to support student-athletes struggling with aggression, alcohol use, or psychological distress.

A PREDICTIVE MODEL OF COACH-ATHLETE ATTACHMENT AND EMOTION REGULATION ON STUDENT-ATHLETE AGGRESSION, ALCOHOL USE, AND PSYCHOLOGICAL DISTRESS

by

Stephen P. Hebard

A Dissertation Submitted to
the Faculty of the Graduate School at
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Doctor of Philosophy

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Approved by

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Committee Co-Chair

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For Nugget, with all my love.

APPROVAL PAGE

This dissertation written by Stephen P. Hebard has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

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Date of Final Oral Examination

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At my first glance, the dissertation appeared to be an intense and rigorous academic exercise that would test my abilities as a researcher. This was undeniably true; however, I will always remember the dissertation as a process that thrust me into vulnerability. The moments of fear and unpredictability that have challenged me on both professional and personal levels have also opened me up to the love and support of my community, and for that, I am and will be eternally grateful.

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CHAPTER I

INTRODUCTION

As of the 2011-2012 season, the total number of NCAA student-athletes reached an all time high. Over 444,000 (NCAA, 2011) currently play for more than 1,200 NCAA affiliated institutions (NCAA, 2014). As both students and athletes, this subpopulation of full-time college students lives the unique experience of balancing a commitment to success in their academic and athletic endeavors. Although NCAA student-athletes are thought to enjoy special treatment and celebrity-like status at many campuses nationwide, it has been suggested that they undergo unique emotional, physical, and developmental trials (Watson & Kissinger, 2007). Described as an "at-risk" population, student-athletes are predisposed to mental health distress due to the various demands associated with their athletic status (Pinkerton, Hinz, & Barrow, 1987; Ferrante & Etzel, 2009). The National Athletic Training Association, (Neal et al., 2013) in their plan for referral and psychological services, reported that the stressors associated with balancing academic and athletic responsibilities may trigger or exacerbate psychological concerns.

According to Parham (1993), student-athletes face six distinct challenges unique to their collegiate experience. At minimum, the typical student-athlete must (a) balance academic and athletic pursuits; (b) adapt to isolation from social/mainstream activities; (c) manage successes and/or perceived failures; (d) give deliberate attention to physical

health to prevent injury and the need for rehabilitation; (e) satisfy coaches, parents, friends, and community relationships; and, in most instances, (f) terminate his or her athletic career once they have used their NCAA eligibility. Researchers have suggested that adolescents experiencing numerous transitions at once may be more likely to experience negative mental health outcomes, which implies that student-athletes may be a subpopulation of adolescents who are vulnerable to distress (Peterson & Leffert, 1995). In fact, researchers reported that 10-15% of student-athletes experience psychological distress that warrants counseling services (Hinkle, 1994), an estimation that has been described as "conservative" (Watson, 2005). Psychological distress via the emotional states associated with depression, anxiety, stress, aggression, and alcohol use intensity and related consequences of alcohol use represent prevalent mental health-related concerns that negatively impact student-athletes and garner significant media attention.

Undergraduate students specifically report astoundingly high rates of mental health concerns. According to the American College Health Association (2012), over half (52.2%) of undergraduate students reported their overall level of stress was at a "more than average to tremendous" level, and that they felt overwhelming anxiety (51.3%). Furthermore, almost half felt things were hopeless (46.5%), nearly a third (31.6%) described experiencing depression that made it too difficult to function, and 7.5% seriously considered suicide. In addition to the challenges non-athletes experience, student-athletes are impacted by a remarkable number of unique challenges and psychosocial stressors by comparison (Neal et al., 2013). For instance, 21% of one student-athlete sample met clinical cutoff scores for depression (Yang, et al., 2007), with

other sources finding significantly higher levels of depression and anxiety in student-athletes than non-athletes (e.g. Storch, Storch, Killiany, & Roberti, 2005). Furthermore, Etzel (1989) found that anxiety, worry, and irritability as well as overall levels of life stress were higher in student-athletes than non-athletes.

In addition to, and perhaps related to their experiences of psychological distress, student-athletes display higher binge drinking rates (57% of males, 48% of females) as well as a greater number of drinking-related consequences than non-athletes (Nelson & Wechsler, 2001). According to Leichliter, Meilman, Presley, and Cashin (1998), in their comprehensive study of 51,483 student-athletes at 125 institutions, the researchers found that 29.2% of team members reported impaired academic work due to alcohol use, 40.5% missed class, 19.3% were in trouble with the police, 38.8% were in arguments or fights, 36.9% drove under the influence, 36.9% had memory loss, 45.6% regretted their actions, and 16.6% had been taken advantage of sexually while under the influence of alcohol. Further, Sønderland et al. (2014) conducted a review of the empirical literature in which the relationship between alcohol-related violence and sport participation was analyzed. In 10 of the 11 reviewed studies, sports participation predicted verbal, physical, and/or sexual violence. Athletes have also been found to display greater levels of aggression than non-athletes in terms of the frequency of reported physical and sexual violence, and male athletes have been found to respond more positively to rape-supportive statements than non-athletes (Crossett, Benedict, and McDonald, 1995; Boeringer, 1999). However, replication is needed to clarify the differences in student-athlete and non-athlete

aggression, alcohol use, and psychological distress due to conflicting research in the extant literature.

A clear, empirically based explanation of student-athlete mental health concerns is necessary. One such framework for conceptualizing one's expression of aggression, psychological distress, and alcohol use is via the developmental theory of attachment and its close association with emotion regulation.

Attachment Theory

In light of the mental and emotional challenges faced by student-athletes, it is important that researchers understand the intrapsychic factors and relational components associated with their distress and related behaviors. Attachment was once conceptualized as a construct rooted in behaviorism that explains how infants seek protection via proximity to their mothers (Bowlby, 1958). Researchers have since come to understand the importance of adult attachments and their impact on the regulation of emotions (Ainsworth, 1989; Mikulincer & Shaver, 2008). Theoretical and empirical arguments for conceptualizations of adult attachment describe specific attachments in romantic relationships (Hazan & Shaver, 1987), the counseling relationship (Dozier & Tyrell, 1998), and counseling supervision (Pistole & Watkins, 1995), among other important relationships. Recent research by Davis and Jowett (2010) has confirmed that the coach-athlete relationship represents a unique attachment bond. Their study of 309 British student-athletes of individual and team sports resulted in the finding that athletes seek proximity to their coach, who serves as a secure base and safe haven. However, research

regarding the impact of this unique bond on emotion regulation and relevant mental health factors of athletes has yet to be accomplished.

Emotion Regulation

Attachment clearly plays a significant role in an individual's experiences of distress; however, it has not been examined as a mechanism for the development of emotion regulation in student-athlete populations. Although rooted in behaviorism, attachment is perhaps best understood as a key element in the development of one's conscious and unconscious ability to regulate emotions (Bowlby, 1969/1982; 1973; Sroufe & Waters, 1977; Cassidy, 1994, Diamond & Aspinwall, 2003). Attachment is observed and measured in terms of anxiety and avoidance (Brennan, Clark, & Shaver, 1998). Individuals with high levels of attachment anxiety do not perceive support to be available and/or effective. As a result, they rely on the emotion regulation strategy of hyperactivation, the up-regulation of one's emotions to garner attention from an attachment figure (Mikulincer & Shaver, 2008). Deactivation, or the down-regulation of emotions, develops in response to caregivers who withdraw from attachment behaviors, disapprove, or respond angrily. Individuals who down-regulate by suppressing emotions deny worries, needs, and vulnerabilities and are often compulsively self-reliant when feeling threatened (Mikulincer & Shaver, 2008). This results in a lack of an ability to depend on others, to express affection for others, and engage in intimate emotional connections (Edelstein & Shaver, 2004).

The majority of literature concerning the impact of emotion regulation on athletes occurs within the context of the individual's ability to perform at an optimal level (e.g.

Uphill, McCarthy, & Jones, 2009). In other words, researchers have investigated the ability of athletes to regulate their emotions as a component of performance optimization (e.g., utilize anger to compete at a higher level) but not as a general factor in overall wellness. A student-athlete's coach, who serves as an attachment figure in adulthood (Davis & Jowett, 2010), may play a context-specific role in the emotion regulation process. Although patterns of emotion regulation displayed by the student-athlete have developed across the lifespan via more primary attachments (i.e., parental figures), the attachment bond between athlete and coach may presently encourage relief from distress, optimism, and hope if characterized by security and safety. Understanding attachment as a theory of emotion regulation is likely important for developing a conceptualization of student-athlete psychological distress, aggression, and alcohol use.

Interactions with attachment figures in infancy and early childhood neurologically hardwire the individual to regulate his or her emotions in order to meet the goal of resolving distress (Diamond & Aspinwall, 2003). Theoretical support for models of emotion regulation and its relation to mental health distress have been empirically established for depression (Hertel, Schütz, & Lammers, 2009), anxiety (e.g. Cloitre, Miranda, Stovall-McClough, & Han, 2005), and stress, specifically concerning high levels of worry associated with Generalized Anxiety Disorder (Mennin, Heimburg, Turk, & Fresco, 2005). Moreover, substance use has been conceptualized as self-medication to regulate affect (Khantzian, 1997), and individuals who suppress emotions or express emotions with the intention of repairing their mood may behave more aggressively (Tall, Jakupcak, Paulson, & Gratz, 2007; Bushman, Baumeister, & Phillips, 2001). In all cases,

psychological distress is predicted by difficulties in self-soothing and emotion expression, an increase in attempts to suppress and avoid emotions, and significant discomfort with the experience of these emotions. Additionally, some individuals who struggle to regulate emotions effectively may experience less clarity regarding specific feelings, reduced sensitivity to changing emotional contexts, and lower accuracy of emotion perception in others. This line of research reveals a clear connection between emotion regulation and psychological distress, aggression, and alcohol use; however, this research has not been applied to student-athlete populations.

Analysis of the impact of emotion regulation on levels of negative psychological distress, aggression, and alcohol use consequences in student-athlete populations is not only missing from the literature, but may suggest the need for increased mental health services with athlete populations. To address these concerns, the researcher will test a predictive model of emotion regulation in which attachment via the coach-athlete relationship and psychological distress, aggression, and alcohol use intensity are mediated by an individual's capacity to regulate their emotions. A statement of the problem, the purpose and need for the study, research questions and operational definitions for important constructs are provided below.

Statement of the Problem

Despite researchers acknowledging student-athletes as a population with unique challenges and demands, a clear understanding of the prevalence of psychological distress representative of depression, anxiety, and stress, aggression, and alcohol use does not yet exist. Further, conflicting reports of these mental health factors across gender and

athletic participation status exist in the literature. By developing a comparative study of the aforementioned variables across gender and athletic participation, the researcher may be able to confirm differences among these populations. Further, researchers have yet to develop an empirically tested model to predict challenges to optimal mental health functioning among student-athletes. This researcher will propose a model based on the attachment between athlete and coach and its impact on emotion regulation. Individuals with secure attachments report fewer negative emotions and lower levels of depression, anxiety, and loneliness (e.g. Cooper, Shaver, & Collins, 1998), lower levels of aggression (Buist, Deković, Meeus, & van Akus, 2004), less alcohol use, and fewer negative consequences of alcohol use (Labrie and Sessoms, 2012) compared to those with insecure attachments. Researchers have yet to develop and test a model of student-athlete mental health based that may inform counseling practice with this population. Figure 1 provides a diagram of the proposed path model.

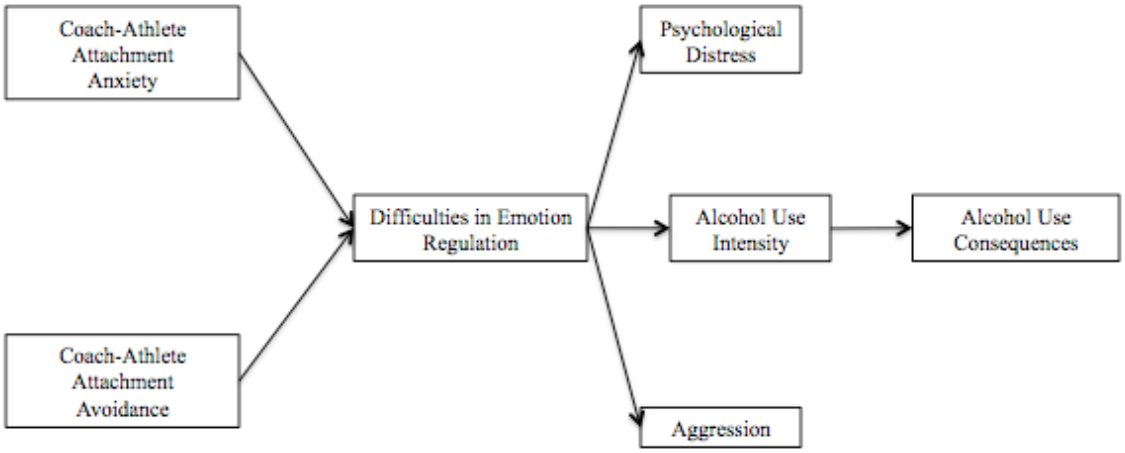


Figure 1. Hypothesized Mediating Role of Emotion Regulation on Coach-Athlete Attachment, Psychological Distress, Alcohol Use, and Aggression

Purpose of the Study

The researcher will examine the extent to which a predictive model of psychological distress, aggression, and alcohol use consequences based on Attachment Theory and emotion regulation provides an adequate fit for the collected data (Figure 1). The negative emotional states associated with depression and anxiety (e.g. Campbell-Sils & Barrow, 2007), as well as stress (Mennin, Heimberg, Turk, & Fresco, 2002), have been explained by individual struggles with emotion regulation. Researchers of "Modern Attachment Theory" (Schore & Schore, 2008), consider the neurobiological underpinnings of emotion dysregulation, developed primarily in infancy and childhood, to be the primary consequence of insecure attachment. Thus, Bowlby's (1969/1982; 1973) original belief that attachment insecurity across the lifespan is responsible for depression and anxiety symptoms is supported. Further, over 100 studies with adult

samples show that insecure attachment is a significant predictor of depression and anxiety. (Mikulincer & Shaver, 2007). Student-athletes are a population inherently prone to a high number of stressors in comparison to their non-athlete counterparts (Ferrante & Etzel, 2009). Although an athlete's coach may fulfill the role of a secure attachment figure (Davis & Jowett, 2010), the athlete's experiences in close relationships across the lifespan may have predisposed the individual to emotion dysregulation in response to perceived threats, perhaps especially within the coach-athlete relationship. The results and discussion of this analysis may inform research and practice with student-athletes, including implications for increased services for athletes and the need to address attachment and emotion regulation challenges in clinical work with student-athletes. Additionally, the researcher will perform a preliminary comparison of student-athlete and non-athlete mental health distress. The present landscape of student-athlete mental health research has resulted in significantly different conclusions. Whereas many researchers have found that mental health concerns such as depression (Storch, et al., 2005; Yang, et al., 2007; Nixdorf, Frank, Hautzinger, & Beckmann, 2013), anxiety (Storch, et al., 2005), and aggression (Benedict & Yaeger, 1998) are at least as prevalent in student-athletes as their non-athlete counterparts, other researchers (Proctor & Boan-Lenzo, 2010) have found contradictory results. The researcher intends to clarify these findings in the current study.

Need for the Study

Skourteli and Lennie (2001) described the present approach to counseling student-athletes as including academic advising, life skills development, clinical counseling, and

performance enhancement; however, the researchers added that the majority of counselors focus on academic eligibility maintenance and graduation rates rather than holistic development. In his research with student-athletes, Watson (2005) discovered that a counselor's knowledge of sport enhanced the therapeutic relationship with student-athlete clients. Although an area of clinical practice entitled, "sport counseling," exists in theory, counselors need clarity about the unique and specific mental health needs of this population to ensure they are providing optimal services. To address this need, the researcher will test a model of student-athlete distress as a function of emotion regulation and coach-athlete attachment. By addressing this research gap, counselors may have additional evidence of a need for their services with this population.

Evidence of student-athlete distress may call attention to the need to improve the quality and quantity of counseling services for this population. Despite researchers' best efforts to understand student-athlete distress, comparisons of the prevalence of mental health concerns between student-athlete and non-athlete populations has resulted in mixed conclusions (e.g. Storch, et al., 2005; Proctor & Boan-Lenzo, 2010). The researcher will perform a comparative analysis to add to the research base to provide clarity on the distress experienced by student-athletes compared to non-athletes. A heightened awareness of this distress among mental health professionals may encourage counselors to garner support in the formation of specialized mental health services for this population.

A predictive model of student-athlete distress from the paradigm of attachment as a theory of emotion regulation may give counselors a developmental framework for

understanding the developmental nature of student-athlete mental health concerns. Counselors working with student-athletes operating within this framework may impact client-counselor attachment via the therapeutic relationship in providing a corrective experience, and thus, a revision of attachment (Cassidy, 1994). An empirically tested model is necessary to develop a rationale for increasing counseling services for student-athletes struggling with mental health concerns. Finally, an understanding of the impact of coach-athlete attachment on student-athlete distress may provide opportunities for counselors to educate coaches on how their interactions impact athlete mental health.

Research Questions

Based on a review of the relevant literature, the following research questions have been proposed:

Research Question 1: What are the relationships between coach-athlete attachment avoidance, coach-athlete attachment anxiety, difficulties in emotion regulation, aggression, alcohol use intensity, alcohol use consequences, psychological distress, gender, and athletic status?

Research Question 2: Does the collected data confirm the two-factor structure of the Coach-Athlete Attachment Scale?

Research Question 3: Does the predictive model of aggression, alcohol use intensity, alcohol use consequences, and psychological distress among student-athletes predicted by coach-athlete attachment and difficulties in emotion regulation present an acceptable fit for the sample data?

Research Question 4: How well do difficulties in emotion regulation mediate the relationship between coach-athlete attachment and student-athlete aggression, alcohol use intensity, and psychological distress?

Definition of Terms

The following operational definitions of key constructs are used throughout the study:

Coach-Athlete Attachment is a relationship in which an athlete's coach fulfills the three requirements of an attachment figure to athletes: proximity maintenance, secure base, and safe haven (Davis & Jowett, 2010; Ainsworth, 1989). An athlete securely attached to their coach experiences a need to maintain proximity to coach, distress when separated from coach, and trust that a coach will serve as a source of support and comfort in times of need (Davis & Jowett, 2010). However, not all attachments are secure. It is plausible that many athletes do not experience coaches in this way due a lack of security in the coach-athlete bond. In this study, coach-athlete attachment will be measured using the Coach-Athlete Attachment Scale (CAAS; Davis & Jowett, 2013) on factors corresponding to the two dimensions of attachment, Anxiety and Avoidance.

Attachment Anxiety is a dimension of attachment characterized by worry that others will not be available or supportive during times of need due to fear of abandonment (Mikulincer & Shaver, 2007). In the current study, attachment anxiety will be measured in the context of the coach-athlete attachment bond.

Attachment Avoidance is a dimension of attachment characterized by independence and emotional distance due to a discomfort with closeness and difficulty

trusting an attachment figure's good intentions (Mikulincer & Shaver, 2007). In the current study, attachment avoidance will be measured in the context of the coach-athlete attachment bond.

Emotion Regulation will refer to the conscious and unconscious internal and transactional processes by which individuals modify their emotional experience and/or the emotion-provoking situation (Diamond & Aspinwall, 2003; Gross, 1999).

Psychological distress refers to the negative emotional states associated with the clinical characteristics of depression, anxiety, and stress (Lovibond, 1998). In terms of this study, psychological distress is measured and defined by the Depression, Anxiety, and Stress Scales (DASS-21; Lovibond & Lovibond, 1995).

Aggression is a global term used to incorporate four factors: physical aggression, verbal aggression, anger, and hostility (Buss & Perry, 1992). For the purposes of this study, aggression is measured using the Buss-Perry Aggression Questionnaire Short Form (BPAQ-SF; Bryant & Smith, 2001).

Student-Athletes are students who currently participate in athletics at an NCAA affiliated four-year institution and were solicited by a member of the athletics staff or other representative of athletics interests with a view toward the student's participation in the intercollegiate athletics program. Under the NCAA, student-athletes are required to meet academic criteria to be eligible to participate in athletics during their first year. All student-athletes participating in this study will be Division I student-athletes who have met the requirements to be considered fully eligible for athletic participation or an academic redshirt.

Organization of the Study

In this chapter the attachment system was introduced as a foundation by which individuals regulate their emotions. Arguments were made for an analysis of student-athlete psychological distress, aggression, and alcohol use in comparison to non-athletes and the mediational role of emotion regulation on coach-athlete attachment and psychological distress. A statement of the problem, the purpose and need of the study, research questions to be addressed, operational definitions, and a brief overview of the study were provided. Chapter II, will provide an in-depth review of the relevant literature including a comprehensive description of student-athlete experiences of psychological distress related to depression, anxiety, and stress, aggression, and alcohol use. In addition, Attachment Theory, the central role of the attachment system in emotion regulation, coach-athlete attachment, and the role of emotion regulation in psychological distress related to depression, anxiety, and stress, aggression, and alcohol use will also be explored. Chapter III describes the methodology and data analysis that will be utilized to answer the studies research questions. Research hypotheses, instrumentation, participant information, and data collection procedures will be described in detail. In Chapter IV, the results of the study will be presented. The results of the study will influence a discussion of the studies findings that will be included in Chapter V, in which implications and recommendations for counseling practice and research with student-athletes will be discussed.

CHAPTER II

REVIEW OF RELEVANT LITERATURE

The proposed study is designed to test a model (Figure 1) of the mediating effects of emotion regulation on Coach-Athlete Attachment and factors that include psychological distress, aggression, and alcohol use. Therefore, this chapter will explore the existing literature regarding three broad areas, athletes in crisis, Attachment Theory, and the relationships between emotion regulation and relevant factors of the model. To set the stage for the literature review, a brief overview of emotion regulation is provided to contextual the review.

The first section of the literature review includes a thorough discussion of the literature describing the severity of challenges faced by student-athletes that impedes their mental health and wellness. This section includes an overview of the research regarding factors that put athletes at risk and will specifically address student-athlete aggression, alcohol use intensity and consequences, and emotional states associated with their psychological distress. Second, the researcher will review the developmental theory of attachment form infancy to adulthood and how it has been applied to the coach-athlete relationship. Third, the predictive nature of attachment on individual emotion regulation will be discussed. Emotion regulation will be explored as a primary contributing factor of psychological distress, aggression, and alcohol use. Finally, a summary of the extant literature and the gaps that will be addressed by the current study will be discussed.

In the proposed model for this study (Figure 1), emotion regulation is the mediating variable between coach-athlete attachment and important psychological variables of student-athletes. In addition to the paucity of coach-athlete attachment research with psychological variables related to factors of student-athlete mental health, few researchers have considered emotion regulation in their understanding of how attachments impact these psychological variables. Therefore, a clear understanding of emotion regulation is critical to comprehension of the proposed model in the dissertation study.

Clarifying a Framework of Emotion Regulation

The theory of emotion regulation grows out of the scientific understanding of attachment patterns, which are formed in infancy and early childhood. In other words, an adult's ability or inability to regulate emotions can be thought of as a process that was shaped by his or her early experience of caregivers. The adult may be more or less able to approach a significant other in times of perceived distress based on these early developmental experiences. According to Gross (1999), emotion regulation involves conscious or unconscious means of modifying ones experience or the environment to minimize experiences of emotional distress. Emotion regulation is an individual's shaping of their emotional experience, and expression (Gross, 1998), including those that are intrinsic (e.g. suppressing anger toward a coworker) or extrinsic (e.g. a child cries to receive attention from their mother). An important distinction made via this definition is that adaptive emotion regulation involves the modification of emotional experiences in accordance with ones goals rather than immediate control in an attempt to diminish

negative emotions (Thompson, 1994). In fact, researchers suggest that these attempts to control (e.g. avoid or suppress) negative emotions, paradoxically, result in significant increases in psychological arousal and emotion dysregulation (Campbell-Sills, Ellard, & Barlow, 2014). Researchers have thus posited that increased awareness, understanding, and acceptance of one's emotional experience are key to adaptive emotion regulation (Saarni, 1999).

There are several approaches to understanding and measuring emotion regulation; however, perhaps the most inclusive way may be by understanding the previously described components of adaptive emotion regulation (Gratz & Roemer, 2004). To this end, Gratz and Roemer included four primary competencies necessary for adaptive emotion regulation pulled from several distinct, empirically founded conceptualizations of emotion regulation. They include:

> (a) awareness and understanding of emotions, (b) acceptance of emotions, (c) ability to control impulsive behaviors and behave in accordance with desired goals even when experiencing negative emotions, and (d) ability to use situationally appropriate regulation strategies flexibly to modulate emotional responses as desired in order to meet individuals goals and situational demands (p.42).

This conceptualization of emotion regulation has been utilized in the development of the DERS (Gratz & Roemer, 2004), an instrument for measuring an array of psychological variables including depression, anxiety, suicidal ideation, eating disorders, alcohol use, and other variables among others (John & Eng, 2014). Although less narrowly focused than addressing only the specific processes to regulate emotion like suppression and

reappraisal (e.g. Gross & John, 2003), this approach includes abilities an individual must exhibit to avoid difficulties in emotion regulation (Gratz & Roemer, 2004). A thorough understanding of emotion regulation and its development may improve researcher and practitioner comprehension of the prevalent mental health issues experienced by student-athletes.

Athletes in Crisis

Even the most occasional of American sports fans will tell you this: professional athletes frequent the popular media headlines for their participation in illegal behaviors. Athletes of the National Football League (NFL), who by their association with the United States' most popular sport, are largely in the spotlight in comparison to athletes of other sports. Consumers of sport with concerns about athlete arrests and substance use are left to wonder: are highly publicized incidents indicative of a larger trend of athletes in crisis, or is the quantity of national coverage responsible for our perception?

Professional Athletes and Mental Health Distress

Recent reports in the national media lead readers to believe that athletes are arrested for these mental health-related phenomena less so than the general population. The off-season arrest rate for NFL players (3.5%) pales in comparison to the national arrest rate for men aged 22 to 34 (9.9%; Gregory, 2013). Further, arrests made for driving under the influence of alcohol were fewer for athletes of Major League Baseball (MLB), the National Basketball Association (NBA), and the NFL (Bois, 2013). Yet what is missing from the data being reported on by national media outlets is an overwhelming lack of adherence to basic principles of methodology. Several significant assumptions

exist in comparing the general population to elite professional athletes. For instance, analyses have compared samples from differing age ranges (e.g. Blumstein & Benedict, 1999), socioeconomic statuses, and level of education and parental education, among countless individual predictors yet to be considered. Blumstein and Benedict's (1999) comparison of the prevalence of assault between NFL athletes and the general population is perhaps the most frequently cited (and only) refereed publication to address these concerns. However, the researchers' comparisons of raw numbers without the use of comparative statistical analyses and mention of the sample populations do not provide the reader with new knowledge of any significance. To date, the information regarding professional athlete mental health is incomplete and consumers and researchers alike are left to rely on anecdotal and incomplete reports.

Aggression. In the summer of 2014, first overall pick of the 2007 NBA draft, Greg Oden, was arrested for punching his girlfriend in the face. Later in the summer, veteran running back Ray Rice was suspended by the NFL for dragging his fiancée's body from a casino elevator while she was unconscious from his assault. Aggression, most often reported in the national media in the form of violent acts, is a substantial concern among athletic populations. Benedict and Yaeger (1998) revealed that of their sample of 509 National Football League players, 109 had been arrested one or more times for serious crimes, for a total of 264 arrests. The crimes considered in Yaeger's study included a number of forms of physical aggression, including: homicide, rape, kidnapping, robbery, assault, battery, domestic violence, reckless endangerment, property destruction, illegal use or possession of a weapon, disorderly conduct, and resisting

arrest. In a separate study, Benedict (1997) found that between 1986 and 1996 over 425 professional and student-athletes were publicly reported to have committed violent crime of physical assault and/or rape against women. These numbers peaked in 1995 and 1996, when 199 male athletes were charged with physical or sexual assaults on women.

Alcohol abuse. Drafted by the then Tampa Bay Devil Rays, Josh Hamilton was Baseball America's top prospect of the year in 2001. However, a back injury suffered in a car accident that negatively impacted a brief minor league stint with the club triggered a downward spiral of alcohol and drug use that has plagued him throughout the course of his career in Major League Baseball (The Orange County Register, 2013). Off the field, Hamilton publicly struggled through divorce and homelessness and was in and out of rehabilitation clinics on eight separate occasions in the 2000's. Unfortunately, Hamilton's story is all too familiar among professional athletes. According to the American College of Sports Medicine, alcohol has been found to be the most abused substance by players of the National Football League, National Basketball Association, and the United States Olympic Committee. Further, elite athletes self-report an average of 5% of their calorie intake is consumed through alcoholic beverages (Vella & Cameron-Smith, 2010). Unfortunately, the current majority of information regarding elite athlete alcohol use and abuse is in the form of media-driven anecdotes rather than empirically founded studies.

Psychological distress. Brandon Marshall, wide receiver for the NFL's Chicago Bears and advocate for mental health, revealed his diagnosis of Borderline Personality Disorder to the media in July of 2011 (Cogan, 2014). Marshall had become notorious for off-the-field issues including domestic violence, false imprisonment, assault and battery,

driving under the influence, and several verbal arguments that led to police intervention (ESPN Stats and Info, 2012). Individuals diagnosed with Borderline Personality Disorder display negative emotionality characterized by emotional lability, anxiousness, and depression, antagonism, and impulsivity, which often lead to chaotic relationships and self-harm (American Psychiatric Association, 2013). After years of treatment that has included Dialectical-Behavioral Therapy (Linehan, 1993), Marshall identifies his childhood and important relationships primary influenced his mental health. In a 2014 interview with ESPN, he shared, "From my grandmother to my aunts and uncles, to me, my cousins and our children ... I noticed that our temperaments, how we communicated, how we dealt with conflict was the same. There was no such thing as validating" (Cogan, 2014). Although some researchers (e.g. Hoyer & Kleinert, 2010) have argued that athletes possess an increased resistance to mental health complications and other researchers (Babiss & Gangwisch, 2009) maintain that sport participation provides a protective factor against the diagnosis of depression, the majority of research findings do not support the notion that participation in sport renders athletes invulnerable to mental health complications. In fact, Brewer (1993) reported that possessing a high athletic identity was linked to general psychological distress, overtraining, and athlete burnout, factors which were correlated with an increased prevalence of a diagnosis of Major Depressive Disorder. Marshall's life story may be unique, but it is representative of personal accounts offered by athletes who struggle with mental health issues.

In spite of services including free car services for athletes unable to drive safely due to intoxication (e.g. the NFL's safe rides program), sponsored programs dedicated to

education and individual services regarding athlete health, substance abuse, personal wellness, and more (e.g. NFL Evolution; NBA Players Association Health-Related and Player Assistance Programs; MLB Baseball Assistant Team), the best training and medical services that money can buy, and various other supports, professional athletes continue to find themselves in crisis regarding various aspects of mental health that are only discussed in terms of the legality of their behaviors. In fact, since NFL commissioner Roger Goodell instated stricter punishments for player misconduct, arrests have increased by 61% as of 2013 (Gregory, 2013). Presently, an unambiguous understanding of these issues is necessary. Further, it may be that these mental health factors are present and/or developed while participating in collegiate athletics. In fact, student-athletes make up a population that is particularly susceptible to challenges to their mental health and well-being (Ferrante & Etzel, 2009).

Student-Athlete Aggression and Violence On and Off the Field

In 2010, Elizabeth Lambert, a defender for the University of New Mexico's soccer team, kicked, tackled, tripped, forearmed, and eventually, pulled an opponent to the ground by her ponytail before being removed from the game. In a New York Times article by Jeré Longman (2009) two weeks after the incident, Lambert reported regret, but still claimed, "I think the way the video came out, it did make me look like a monster. That's not the type of player I am. I'm not just out there trying to hurt players." Yet what is perhaps most notable is how Lambert described her self to Longman. The author wrote, "Lambert said she eventually grew frustrated, as much with herself as with the opponent, saying she had often struggled with self-confidence and with feeling 'that I'm accepted

playing at this level.'" Lambert's story is just one of many acts of aggression that are prevalent among student-athletes.

According to Benedict and Yaeger (1998), incidents of domestic violence are the number one crime committed by athletes; however, aggression in the form of sexual violence is also far too prominent among this population. In July 2014, the NCAA met with the United States Senate to discuss a need for increased and improved education programming related to sexual violence prevention for student-athletes (Holden, 2014). Polls from 236 NCAA affiliated universities showed that only 37% of student-athletes received education about sexual violence whereas non-athletes were educated on the subject in 82% of schools. Additionally, 20% of athletics programs were found to have a role in handling allegations of sexual violence by and against student-athletes, which may lead to underreporting of violence and biased handling of assault cases.

Pappas, McKenry, and Catlett's (2004) qualitiative analysis of collegiate and professional ice hockey players' experiences of aggression, one athlete shared his sentiments on how aggression and violence continue off the playing field:

> They (coaches and fans) make demands on athletes to be tough because they want to see it, it [aggression] automatically carries over when you see some guy who's huge and charged with beating his wife. It's like, what—so they think this is some sort of surprise, because if you're paying a guy three million dollars a year to knock somebody's block off, do you expect them to turn it off? No way, and you're praising him to be this animal, you know, you want him to be a destructive force on the field but then you want him to be some sort of pussy cat off the field?

Although the aforementioned narratives are isolated incidents, they represent a culture of aggression and violence that exists among collegiate and professional athletes on and off

the field. To date, one single study compares levels of aggression in student-athletes and non-athletes. In 2002, Lemieux and colleagues performed a comparative analysis of aggression based on athletic participation, contact or non-contact sport, and physical size of the individual in a sample of 194 Canadian student-athletes. Athletes representing their university in football, rugby, basketball, golf, track, baseball, volleyball, and soccer were compared to non-athlete students based on their levels of aggression, age, year of study, height, and weight. In their comparison, athletes and non-athletes were matched based on their height and weight. The researchers found that athletes in contact sports displayed greater levels of aggression than non-contact athletes and that aggression was related to an individual's weight (Cohen's $d = 0.45$); however, it is unclear why the sample was grouped by physical size. Further, the authors did not provide a coherent rationale supporting their findings and an analysis of differences based solely on athletic participation was not performed. The current study will address this gap in the literature by performing a comparative analysis of aggression by athletic participation.

The true prevalence of sexual assault is difficult to study due to the fact that about 60% of rapes go unreported (Rape, Abuse, and Incest National Network, 2009). However, Hoffman (1986) via informal polling of college students, concluded that 1 in 3 on-campus sexual assaults are committed by student-athletes. Additionally, researchers surveying one sample found that 7.9% of student-athletes report taking advantage of someone sexually while under the influence of alcohol (Leichliter, et al., 1998). Confirmation of the staggering rates of sexual assault by athletic populations was found in Crosset, Benedict, and McDonald's (1995) study of objective reporting by police and

judicial affairs. The researchers found that male student-athletes, who represented 3.3% of their total male college student sample, were responsible for 19% of the report sexual assaults reported to campus police. In a similar data set, male student-athletes made up 2.8% of the total sample, however comprised 24% of sexual assault perpetrators reported to judicial affairs.

Despite data that clearly reveals that aggression and violence among student-athlete populations is prevalent, empirical research conducted to develop means for reducing the levels of student-athlete off-the-field aggression is scarce. Researchers have found that several constructs related to aggression were elevated in student-athletes more so than among non-athletes. For instance, Aamodt, Alexander, and Kimbrough (1982) sampled non-athletes and collegiate football, basketball, and track athletes (N = 139), finding a greater level of dominance (e.g. getting immediate results, taking authority, making quick decisions) in the student-athlete group. Further, Elman and McKelvie (2002) compared university football players' levels of narcissism to other student-athletes and non-athletes to test the proposed stereotype (N = 112). Football players specifically were found to exhibit higher levels of narcissism using the Eysenck Personality Questionnaire. Although important to explain the prevalence of factors related to aggression, neither study is influential in determining the reasons that these factors or aggression are higher in student-athlete populations.

With knowledge of the prevalence of aggressive and violent behaviors in student-athlete culture, interviewed mental health professionals have cited behavior modeling and environmental pressure as reasons for aggression in sport (Etzel, 2010). However, the

vast majority of research of athlete aggression has been framed primarily in terms of masculinity (Benedict & Yaeger, 1998), social norms related to moral atmosphere (Steinfeldt, Vaughan, LaFollette, & Steinfeldt, 2012), Social Learning Theory (Bandura, 1973; Lemieux, McKelvie, & Stout, 2002), and fear of failure (Sagar, Boardley, & Kavussanu, 2011). Although they are valid conceptualizations of aggression, these frameworks omit individual differences in development and self-regulation. To address the shortcomings of the literature, the proposed research will explore aggression in student-athletes based on attachment and the regulation of emotion.

Student-Athlete Substance Use and Abuse

The collegiate athletic career of former North Carolina Tar Heel (now Charlotte Hornet of the National Basketball Association), P. J. Hairston, is well known due to his athletic prowess as well as his documented use of alcohol and marijuana. In 2013, Hairston was charged for possession of marijuana, then within a month, was photographed while publicly binge drinking at the age of 20 (Yeatts, 2013). Hairston is only one of the many student-athletes who are frequently in trouble with the law due to alcohol and other drug use. The abuse of alcohol among student-athletes has led the NCAA to develop programming specifically for alcohol abuse prevention, including the NCAA CHOICES program developed to help fund alcohol education programs at the university level (NCAA, 2014b). The NCAA's notable emphasis on improving efforts to decrease student-athlete alcohol use is clear evidence that this organization sees it as a significant problem.

Alcohol use patterns. Student-athletes are considered a "high-risk" population for heavy and frequent drinking episodes relative to non-athlete students (Martens, Dams-O'Connor, & Beck, 2006). Alcohol is the most frequently consumed substance by student-athletes (Rexroat, 2014). Researchers have empirically supported the claim that student-athlete alcohol use and related consequences are experienced at a high rate (Leichliter, et al., 1998). Nelson & Wechsler (2001) found that 48% of female student-athletes in one sample participated in binge drinking over the last two weeks, whereas 40% non-athlete females drank similarly. In that same study, the researchers identified male student-athletes as the most-athlete group to binge drink once over the past two weeks (57.0%), with male non-athletes exhibiting a pattern of drinking similar to female student-athletes (48.8%). Alcohol use has been linked to cognitive and physical impairment that impacts athletic performance (Grossbard, LaBrie, Hummer, Pederson, & Neighbors, 2009), and has been found to negatively impact student-athlete academics and cause social problems (Doumas, 2013).

Consequences of alcohol use. The prevalence and consequences of alcohol use among student-athletes are annually documented by the National Collegiate Athletic Association (NCAA, 2014). In 2014 the NCAA randomly sampled student-athletes from all of its associated institutions to determine the prevalence and characteristics of student-athlete alcohol and drug use. Eighty-one percent of student-athletes across the three NCAA divisions report alcohol use in the past thirty days. Researchers have consistently found that the alcohol use prevalence of student-athletes is greater than non-athletes (e.g. Wechsler, Davenport, Dowdall, Grossman, & Zanakos, 1997; Nelson & Wechsler, 2001).

Several glaring characteristics of student-athlete alcohol use were described in the NCAA's report, including 30% report memory loss and/or doing something that they later regretted within the last 12 months, 25% have been criticized for their use of alcohol, although only 6% report a belief that they may need to change their behavior, 9% have been in trouble with the police and/or college authorities, and 14% report driving while under the influence of alcohol.

These self-reported rates of alcohol use and related behaviors by student-athletes are quite staggering; however, the NCAA did not account for the potential for social desirability in this sample. The sample data for the NCAA's 2014 study was collected by Faculty Athletics Representatives (FAR), authority figures who, per the NCAA's Faculty Athletics Representative Handbook (Miranda & Paskus, 2013), certify academic eligibility, inform the athletics department of academic concerns reported by university faculty, participate heavily in major and minor rules violation investigations, write infraction reports, and monitor the well-being of student-athletes. Although the NCAA reported, "…administration of the survey was provided to FAR to ensure anonymity of the data and protection of student-athlete participants," these student-athletes may have responded in a socially desirable manner due to fear of consequences levied by the FAR and university athletics department. Furthermore, the NCAA did not take appropriate steps to identify socially desirable responses, a well known phenomena in research where a socially desirable outcome is known by subjects. For example, Davis, Thake, and Vilhena (2010) found that undergraduate students (N = 391; 177) concerned about managing the impressions of others with regards to the subjects drinking behaviors,

reported 33% less per week than other students, one less drink per drinking episode, less frequent drinking, and that they were only 50% as likely as to drink in a hazardous fashion relative to the overall distribution. Further, individuals who reported higher impression management reported fewer indicators of harmful use. The NCAA's report gives cause for concern, as it may well be that student-athlete alcohol use and related characteristics were underrepresented in their survey data suggesting that alcohol use may be higher that was reported.

Student-athletes who abuse alcohol may also be experiencing significant mental health distress. The Center for Disease Control, reported that 66% of college students diagnosed with a substance use disorder also experienced mental health distress that warranted diagnosis (as cited in Neal, et al., 2013). Miller and colleagues (2002) found that student-athletes reporting clinical levels of alcohol abuse also indicated greater levels of depression and psychiatric symptoms. Furthermore, in one sample of student-athletes, 5.6% of respondents reported thoughts of suicide while under the influence of alcohol (Leichliter, et al., 1998). Given the growing research links between mental health distress, alcohol use and challenges with emotional regulation, the following section, explores the extant research related to student-athlete psychological emotional distress. Research highlighting the prevalence of distress including depression, anxiety and stress as well current explanations of student-athlete emotional distress are presented.

Psychological Distress Among Student-Athletes

The scarcity of research on student-athlete rates of anxiety and depression must be understood at least in part due to the fact that these conditions typically develop in late

adolescence so that these conditions are often just beginning to influence the lives of student-athletes in their collegiate years (American Psychiatric Association, 2000). However, Reardon and Factor (2010), in a systematic review of the literature on athlete mental health, were unable to identify any studies that investigated Generalized Anxiety Disorder, Obsessive Compulsive Disorder, Panic Disorder, Post-Traumatic Stress Disorder, or Specific Phobias among this population. Furthermore the prevalence of depression among student-athletes is unknown due to the small number of studies that have been conducted and the conflicting results that have been found. In addition, researchers have yet to analyze student-athlete mental health distress via theoretically founded empirical research. In the few studies that have been conducted which examined the prevalence of student-athlete mental health distress, the results have potentially clouded the general understanding of the phenomenon due to conflicting results, poorly executed methodologies, and general lack of theoretical grounding utilized in these examinations. These realities make it difficult to generalize as to the overall mental health statuses of this population and support the need for the current study. In spite of complications within the current literature base, understanding the extant literature is warranted.

One such example of athlete mental health distress can be witnessed in Baum's (2005) historical analysis of athlete suicide in the literature published from 1960 to 2000. During this time frame, 71 occasions of athlete suicide were discussed. Baum determined the mean age of these athletes was just 22 years old, yet found numerous risk factors that likely contributed to their suicides, including substance abuse, eating disorders,

retirement from sport, anabolic steroid use, family histories of suicide, histories of sexual abuse including sexual abuse by coaches, and struggles related to sexual orientation. Although this analysis provides context for past athlete suicides, Baum's findings were anecdotal in nature and based on isolated incidents.

One of the original explorations into mental health distress among student-athletes was Etzel's unpublished dissertation study of 263 male and female student-athletes at a Division-I university, in which the researcher found that student-athletes experience greater life stress, worry, anxiety, and irritability than non-athletes (as cited in Ferrante & Etzel, 2009). In 2001, Mentink created a mixed methods unpublished dissertation study that explored student-athlete depression; however, methodological issues impacted the results. For example, Mentink utilized an instrument to measure the difference between student-athlete perceptions and coach/parent perceptions of depression that he developed for his study, however he failed to perform any evaluation (i.e., reliability and/or validity) of the instrument. Furthermore, the qualitative data reported by the researcher from his "grounded theory" and "case study" approach to data collection do not align with the procedures of either methodology. Subsequently, Mentink findings are not generalizable to the larger populations of student-athletes.

Perhaps the most methodologically sound analysis of levels of depression and anxiety among student-athletes was Storch, Storch, Killiany, and Roberti's (2005) study in which multivariate analysis was conducted across differing levels of psychopathology, gender and athletic participation. A sample of 398 undergraduate students, including 105 intercollegiate athletes completed the Social Anxiety Scale for Adolescents and the

depression, alcohol, and nonsupport subscales of the Personality Assessment Inventory. As a result of a 2x2 MANOVA, the researchers concluded that female student-athletes experience greater levels of depression, social anxiety, and non-support than male athletes and non-athletes of both genders. Although Storch and colleagues provide possible explanations for these findings, including a greater number of stressors for female athletes, they admit that these explanations are based in speculation. Similarly, Yang, et al. (2007) found that female student-athletes, as well as freshman and those reporting pain experienced greater levels of depression than other student-athletes. More recently, researchers found that 15% of German elite athletes (N = 99), 20% of junior professionals (N = 35), and 29% of amateur athletes (N = 28) were found to experience clinical levels of depression (Nixdor, Frank, Hautzinger, and Beckmann, 2013). The researchers compare these rates to the German national population (6-17%), citing a 2004 study by Jacobi and colleagues; however, it must be noted that Jacobi and colleagues' study included individuals from 18-65, whereas Nixdor et al. (2013) sampled elite athletes with an age range of 16-37 and junior professionals 15-22 years of age. Jacobi and colleagues did not report a mean age to compare these studies. This researcher will address this missing data by comparing student-athletes and non-athletes of the same age range.

Student-Athlete Distress: Contextual Factors

"As a team we were burnt out physically, mentally and emotionally. It's one thing to be a student-athlete, but we're at an age when we can only handle so much…" (Josephs, 2006).

To fully understand of the need for research into issues related to student-athlete mental health one must first must understand the unique challenges athletes experience by virtue of their participation in sport. According to diasthesis-stress models of mental health, individual factors as well as acute and chronic stressors combine to result in the experience of psychological distress (Beck, 1987). Athletes experience the same developmental tasks as their non-athlete counterparts (Valentine & Taub, 1999), however they must meet an additional set of complex demands associated with their athletic participation (Broughton & Neyer, 2001). These demands include more rigorous academic standards (NCAA, 2014) academic stress (Humphrey, Yow, & Bowden, 2000), constant surveillance from administrators and coaches all of which occurs within an milieu in which the athlete experiences no right to either educational or health privacy (Ferrante & Etzel, 2009). In addition to these factors, overtraining, athletic burnout and injury are athlete-specific sources of distress that have a significant impact on student-athlete levels of distress and may increase one's attempts to maladaptively regulate their emotions.

Overtraining and athletic burnout. One empirically researched area of mental health unique to student-athletes is athletic burnout due to overtraining. Reports vary on the prevalence of overtraining, ranging anywhere from 20% to 60% of elite athletes (Hughes & Leavey, 2012). Athletes who over-train experience elevated levels of cytokines and cortisol, neurological secretions linked to psychological conditions such as depression and schizophrenia (Smith, 1991). Evidence of athletic burnout is present when an athlete begins to psychologically, emotionally, and physically withdraw from an

enjoyable sport as a result of excessive stress experienced by the athlete over a significant amount of time (Smith, 1986). The phenomenon, born out of the Social Exchange Theory literature, occurs when the cost of athletic participation outweighs the benefits of continuing to compete. The consequences of overtraining and subsequent experiences of athletic burnout are evident in the quotations collected by Gould, Tuffey, Udrey, and Loehr's (1996a) qualitative analysis of the phenomenon. For instance one athlete shared, "I went through depression. I mean, I started, um, as far as being depressed… that was all I started thinking about. It was taking away from my schoolwork. I mean, I was kind of falling apart in a way." Student-athletes often feel pressure to continue competing through the physical, mental, and psychological consequences of burnout due to expectations from parents, coaches, and self (Gould, et al., 1996a). Gould and colleagues (1996b) also found that players experiencing athletic burnout report greater levels of withdrawal and concern over mistakes than other athletes. Researchers have determined that overtraining may either be induced by or symptomatic of depression (Armstrong & Vanheest, 2002).

Injury. Although physical injury in athletics is most often treated in terms of physical rehabilitation, significant evidence exists that describes its psychological impact. According to one study, 50% of Division I athletes sustain an injury during competition and in extreme cases, result in enduring physical and emotional difficulties (Parham, 1993). Psychological distress due to physical injury has been conceptualized as an experience of grief and loss (Rotella & Heyman, 1986) or due to one's cognitive appraisal of the injury (Andersen & Williams, 1998). Gould, Udry, Bridges, and Beck's

(1997) hierarchical content analysis of interviews with 21 members of the United States alpine and freestyle ski team who suffered season-ending injuries revealed themes of significant distress as a result of their crashes. For instance, 57.1% of the interviewed skiers reported fear of reinjury and reminders of the critical incident in which they became injured. Another 52.3% described an experience of loss as a result of their injury, with one athlete expressing, "…you have these hopes and dreams and goals and all of a sudden, just in one day, your whole life changes." In addition, the researchers also found social, physical, medical, financial, and other concerns that impacted the injured athlete.

Brewer, Linder, and Phelps' (1995) study of 121 patients at a sports medicine clinic found physician-rated current injury status, personal control over recovery from injury, and social support for rehabilitation were indicative of lower scores on the Beck's Depression Inventory. Finally, researchers are beginning to determine the links between head injuries and depression in athletic populations. Caron, Bloom, Johnston, and Sabiston's (2013) Interpretative Phenomenological Analysis (IPA) of hockey players who had experienced concussions resulted in lived experiences of athletes who experienced anxiety, emotional turmoil, isolation and withdrawal, depression, thoughts of suicide, and social/relational consequences. For instance, one professional athlete said,

> I went into a depression. There were two or three good months where I was down and out. I didn't feel good. I'd forget everything. Deep depression. Emotional, because you think your career is over. Really, I think my wife came home one day and I think I was under the table crying.

The fact that student-athletes are more likely to suffer physical injury than non-athletes suggests that they may also be more inclined to experience distress.

Taken has a whole, the current literature appears to support the notion that high levels of emotional distress impact a large portion of student-athletes. However more rigorous and nuanced investigation into this complex phenomenon is needed based upon theoretically grounded models and utilizing research methods that provide greater statistical control of the variables involved. Further, the paucity of mental health research with student-athletes, conflicting results and ideologies, and significant gaps in the understanding of student-athlete mental health continue to exist. Therefore, the current study proposes a methodologically sound experiment to detail the prevalence of negative emotional states of depression, anxiety, and stress, aggression, and alcohol Furthermore, these data require an investigation into their theoretical grounding to confirm a potential reason for these relevant factors of student-athlete mental health distress. To date, there have been no predictive models of emotional distress applied to an athletic population. Without an understanding of theoretically and empirically founded predictors, advocates for student-athletes are without direction for interventions. This researcher will conceptualize student-athlete distress as a product of emotion regulation, developed via infant and early childhood attachments and observed within the coach-athlete attachment relationship. In the following section, Attachment Theory, a developmental framework for emotion regulation from infancy to adulthood will be explored in depth. Attachment Theory and its relation to emotion regulation has only recently been explored within an athlete-centered context.

Attachment Theory

Bowlby (1969/1982) took an evolutionary perspective to formulating his theory of attachment. Based on the work of Freud, he hypothesized that infants inherently expressed attachment behaviors like crying and clinging to increase the likelihood that they would receive protection from their mother, thus improving their probability of survival. The goal of attachment is not simply proximity to the mother, but the psychological state of safety and security associated with this proximity. Regardless of a caregiver's satisfaction of a child's psychological needs, the infant becomes attached and displays attachment-related behaviors (Bowlby 1969/1982). Therefore, even infants who experience trauma or abuse from mothers still display attachment behaviors (Bowlby, 1956). These behaviors are organized into what has been termed the attachment behavioral system (Bowlby, 1969/1982). Every interaction provides the infant with information that drives the quality of their response to an attachment figure.

Foundations of Attachment

Bowlby's (1969/1982; 1973) conceptualization of attachment during the era of behaviorism has led to over fifty years of experimental research dedicated to understanding the construct of attachment as an organizational component of human behavior, cognition, and emotion. Mary Ainsworth, a colleague of Bowlby's, provided empirical support for the construct. Her experimental observations of infant-caregiver dyads entitled the "Strange Situation" led to categories of attachment, or attachment styles, which described patterns of behavior in response to a mother's quality of interaction with the child (Ainsworth, Blehar, Waters, & Wall, 1978). A child's

attachment style is deemed secure when a child sees a caregiver as responsive, and a safe place from which they can explore the world. Ambivalent attachment is apparent when the child responds angrily or anxiously to the caregiver's contact, although wants to be held and psychologically soothed (Ainsworth & Bell, 1970). An infant's turning or looking away from a caregiver who is perceived to be insensitive or rejecting marks the Avoidant attachment style. Finally, Ainsworth found that insecure attachment styles could be described as Disorganized if an individual experienced trauma, neglect, or an overall lack of care and security as a child. In these instances, the individual may be observed as being alone, afraid, and confused (Ainsworth, Blehar, Waters, & Wall, 1978).

Infancy and Early Childhood

The original conceptualization of infant attachment developed by Bowlby was centered about the formation of the internal working model (Bowlby, 1969/1982). Based on Bowlby's theory, caregiver interactions with the infant and child encouraged the construction of an internal working model representative of generalized and habitual cognitive and affective views of self, others, and one's social interactions, which carry into adulthood (Bowlby, 1973; 1980). The infant of a caregiver who is sensitive to the child's needs develops an internal working model that sees the caregiver as supportive and the self as worthy of support, and will continue to seek proximity to the caregiver who operates as a safe haven. Conversely, another example of the infant's internal working model may lead them to crying out and reaching more frequently and more fervently to gain proximity to the caregiver and a feeling of safety. This goal-oriented

behavior is the direct result of the psychological need for emotional safety in social relationships that extends across the individual's lifespan.

Implications of the developing bond. Infants differ in temperament, their physiological and behavioral responses to environmental stimuli at birth (Calkins, Fox, & Marshall, 1996). Temperament serves as a sort of baseline level of emotional reactivity in the child at birth based on genetic information, and environmental factors during fetal development. Although the quality of the reactivity differs from infant to infant, their visceral arousal serves as the first signal to be soothed, calmed, and thus regulated by external intervention by their caretakers. Thus, temperament is dependent on the extrinsic factors, primarily, interactions with caregivers (Fox & Calkins, 2003). Upon birth, the attachment bond is immediately established from infant to caretaker. This emotional connection ensures security and comfort through proximity (Ainsworth, 1989). When caregivers respond sensitively and appropriately to a child's distress, one's capability to regulate emotion is reinforced.

Securely attached infants do not hide distress, nor do they hide feelings of joy; rather, the experience of negative affect becomes associated with a sensitive caregiver. Through repeated, sensitive responses from caregivers, the infant learns that negative feelings are tolerable (Cassidy, 1994). On the other hand, insecure attachment forms when an infant seeks security and comfort in an attachment figure but does not achieve it through their bid (Ainsworth, 1989). Infants who experience rejection from caregivers minimize their importance by concealing feelings of distress. By minimizing negative affect, the infant actually garners proximity to the caregiver. Caregivers who are

inconsistently available or minimally involved during the child's development elicit increased bids for attention from the infant to attempt to earn attention. The infant may exaggerate fearfulness and other forms of distress to receive attention, and thus, emotion regulation. Further, neglect, abuse, or significant trauma may add significant complexity to the regulation strategy of the developing infant (Knox, 2003). The influence of early attachment experiences is vast. As Bowlby (1979) first hypothesized, the patterns of attachment formed in infancy and childhood are life long, lasting from "cradle to the grave."

Adult Attachment

Hazan and Shaver's (1987) conceptualization of attachment as a process of adult romantic love revolutionized the field of attachment. The expansion of the field of attachment to apply to romantic partners has led to the development of Emotionally Focused Couples Therapy (Greenberg & Johnson, 1988), as well as attachment research on dyads beyond the infant and caregiver. In fact, it was Ainsworth (1989) who clarified the unique nature of the attachment bond in adulthood. Firstly, an affectional bond, a unique connection between two individuals characterized by a desire to maintain closeness to the individual, is necessary. An attachment bond occurs when criteria for an affectional bond are met and in addition, the individual experiences security and comfort as well as the ability to engage in activities outside the relationship without distress. In other words, the attachment figure serves as a safe haven and a secure base. Further, it must be noted that not all attachments are secure. In these instances, the individual seeks

closeness to the attachment figure, although the functions of secure attachment may not be met.

Bartholomew and Horowitz (1991) furthered the evolution of adult attachment via their application of Ainsworth and colleagues' (1978) attachment styles to individuals in adulthood. As displayed in Figure 2, individuals belong to one of four categories, separated by axes of dependence on and avoidance of intimacy.

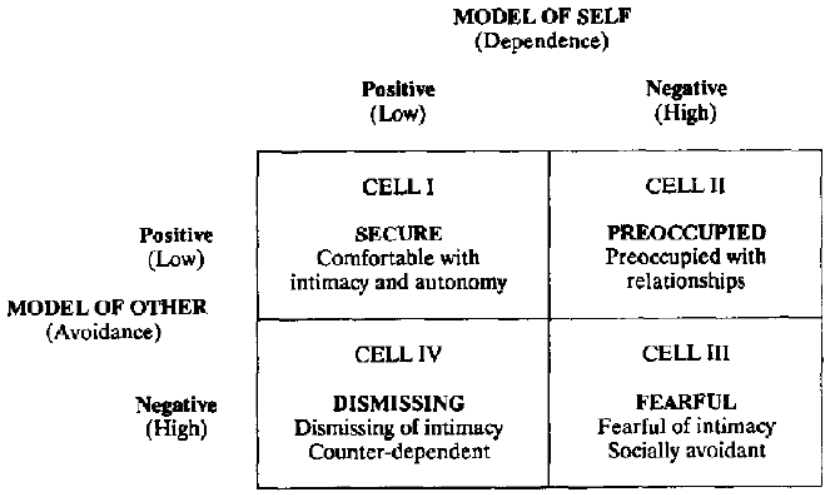


Figure 2. Model of Adult Attachment (Bartholomew & Horowitz, 1991).

This categorical arrangement of attachment resulted in significant research of adult attachment styles; however, simplified attachment rather than allowing for representation via continuous data. To address these concerns, Brennan, Clark, and Shaver's (1998) performed a factor analysis of self-report items on their instrument, Experiences in Close Relationships (ECR) scales, which described attachment strategies on a two-dimensional plot of low to high anxiety and avoidance (Figure 3). The revised form of this scale is

now considered the gold standard for measuring attachment and its relationship with emotion regulation (Mikulincer & Shaver, 2008).

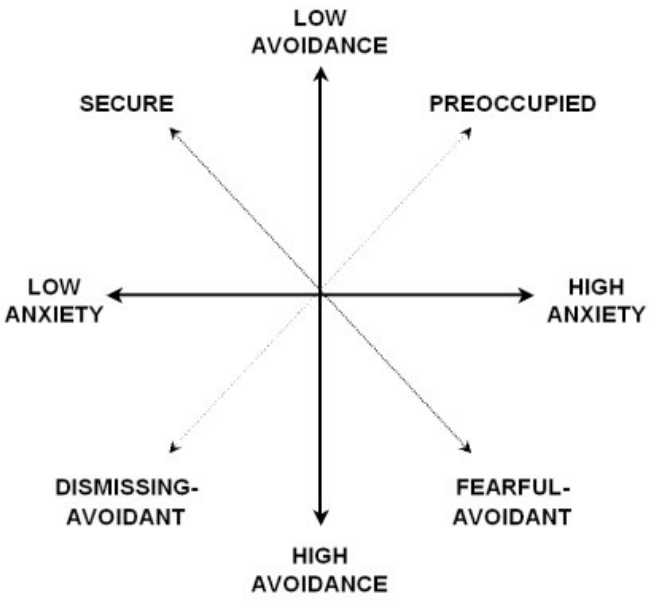


Figure 3. The Two-Dimensional Space Defined by Attachment Anxiety and Avoidance (Brennan, Clark, & Shaver, 1998).

Developmental considerations first described by Bowlby and Ainsworth are maintained throughout adolescence and adulthood. Secure relationships continue to be important to provide scaffolding for the development of flexibility in emotion regulation (Thompson, 2008). According to Mikulincer and Shaver (2008), one's attachment system becomes activated pre-consciously upon appraisal of a threat, leading to an increase in the accessibility of attachment-related memories. If the threat is perceived as robust, the individual experiences both preconscious and conscious messages to seek support and

proximity to a supportive individual. However, the attachment system is moderated by one's level of attachment security or insecurity (Mikulincer & Shaver, 2003).

Student-athlete attachment. Evidence of the impact of attachment and emotion regulation processes specific to student-athletes is currently unclear; however, researchers have indirectly collected data related to these constructs that serve to bolster an argument for further research. For instance, Gould and colleagues' (1996a) qualitative study of competitive junior tennis players provides insight into the impact of important figures on student-athlete emotions:

> He [my father] always kind of considered me a weakling…I think he always considered me a failure. I had a father who was, you know, a typical tennis parent. I didn't even know if I liked tennis, um, but my dad really pressured me a lot, you know, to keep on training and I didn't know what for. I was just kind of suffocating (Gould et al., 1996, p.353).

Though described as "negative parental influence" by researchers, it is clear in the athlete's reflection that he suffered emotional consequences at the hands of his perceptions of the attachment relationship. Large-scale studies have also indirectly made connections to the impact of attachments on student-athlete emotion regulation. Interestingly, student-athletes participating in a sports wagering study were asked to respond to the prompt, "During your childhood and early teens, what was your most typical reaction to rejection by important adults in your life?" (Petr, Paskus, & Dunkle, 2004. Of the 20,739 student-athletes who responded, 52.0% described experiences of rejection by their parents. Further, 19.2% reported they would try harder to do the things that would please them, 14.9% pretended they didn't care, while the remaining 17.9%

reported they sought forgiveness, took their anger out on their parents, or something else, lost themselves in a fantasy world where they were loved and approved, or some other reaction. Although clear that student-athletes are impacted by these important attachments, researchers have yet to look specifically at the impact of attachments and emotion regulation on factors of mental health among this population.

Coach-Athlete Attachment

In addition to her description of the attachment bond in adulthood, Ainsworth (1989) conceptualized a number of dyads that meet the criteria for attachment, including the bond of father and child, pair bonds in romantic relationships, military partnerships (i.e. wingmen, battle buddies, shipmates), siblings, and companions. Researchers have since described additional examples of attachments including attachment to therapist (Dozier, 1990), counseling supervisor (Pistole and Watkins, 1995), religious higher power (Kirkpatrick & Shaver, 1992), and most recently, athletic coach (Davis & Jowett, 2010). According to Jowett (2007), the coach-athlete relationship is complex in that each individual may experience: a) Closeness, the affective ties and associated trust, respect, and interpersonal attraction to one another, b) Commitment, motivation to maintaining their relationship and attachment, and c) Complementarity, the responsiveness and readiness associated with mutual cooperation. Further, researchers have reported that coaches are influential on an athlete's self-esteem and general well-being (Côté & Fraser-Thomas, 2007). Given the emerging research in this area, it is possible that the developmental impact of attachments on patterns of emotion regulation impacts the levels

of distress within student-athletes and between athletes and coaches; however, research into these processes is lacking and therefore sorely needed.

Although the majority of studies of Attachment Theory document the relationship between infant and caregiver or among romantic partners, recent findings corroborate the hypothesis that a coach can serve as an attachment figure for an athlete. Jowett's (2003) case study of an Olympic-level coach-athlete dyad in distress was the first in which the concept of attachment was utilized to describe emotional bonding and closeness in the coach-athlete relationship. Numerous relational factors were determined by analyzing the qualitative data collected via interviews with the primary investigator, including isolation, feeling unattached, intimacy, anger and frustration, trust, disconnection, and emotional support. According to both parties, each experienced significant distress as a result of interactions within the context of their bond. For instance, the coach struggled with balancing what they believed their role as coach was, imposing order and control at the expense of emotional involvement, which the coach believed hindered their objectivity in assessing the athlete's performance. The athlete reported frustration and anger toward her coach, including the feeling that she was compared to other athletes in a degrading manner. Although Jowett did not initially consider the athlete's attachment to the coach as a way to explain her emotional distress, the quality of the bond between these parties led to conceptualization of the coach as an attachment figure.

In light of Jowett's (2003) case study, Shaver and Mikulincer's (2008) suggestion that the coach may be an important context-specific attachment figure for athletes and the paucity of research regarding interpersonal and dispositional factors associated with the

coach-athlete relationship, Davis and Jowett (2010) tested a conceptualization of the relationship through the lens of attachment theory. In consideration of Ainsworth's (1989) description of the attachment bond and assertion that not all emotional bonds are in fact attachment bonds, the researchers set out to determine if coaches played the role of attachment figure in the lives of athletes. Jowett (2003) had initially found that the coach represents a stronger and wiser figure that is influential in how an athlete trusts, experiences empathy, and feels appreciation; however, had yet to confirm that this assertion was generalizable. Davis and Jowett (2010) hypothesized that athletes will perceive that their coach fulfills the functions of safe haven, secure base, and proximity maintenance, the three basic attachment functions associated with the attachment bond. To test this hypothesis, the researchers utilized three subscales of the Components of Attachment Questionnaire (CAQ; Parish, 2000) that matched these attachment functions. Across a variety of individual and team sports, 309 British student-athletes reported high mean values on the three subscales of the CAQ, indicating that coaches did in fact fulfill the functions of secure base, safe haven, and proximity maintenance.

In the wake of these findings, Davis and Jowett (2013) analyzed the relationship quality and satisfaction of coach-athlete relationships based on both the attachment style of athlete and of the coach. However, an analysis of coach attachment styles based on the coach-athlete relationship is not theoretically supported by the attachment literature. Student-athletes are dependent upon a more experienced and wiser figure, the coach, for support, guidance, and encouragement through challenges. This same principle does not apply from coach to athlete. Further, the coach-athlete relationship has been described as

parallel to the parent-child relationship (Jowett, 2005). As evidenced by Ainsworth's (1989) framework for understanding adult attachment, the attachment bond is very specific in that it fulfills the secure base, safe haven, and proximity maintenance functions. Clearly, the child does not serve as a secure base and safe haven for the parent. Researchers have yet to determine if this is true or generalizable to coaches in their supposed attachment to athletes using instrumentation like the CAQ. Furthermore, Davis and Jowett (2013) found no significant influence of coach attachment style on relationship quality or satisfaction.

The few studies involving an analysis of the impact of coach-athlete attachment on individual athlete factors have described an individual's level of avoidant attachment as a significant predictor of variables in the relationship. Davis, Jowett, & Lafrenière (2013) analyzed the influence of actor-partner effects in the coach-athlete relationship, or how an individual's characteristics impact their own perceptions of the relationship and the other individual's perceptions of the relationship. In this case, the researchers identified the extent to which a student-athlete's attachment style impacted their own perception of the coach-athlete relationship as well as the coach's perception of that relationship. Among coach-athlete dyads, student-athletes' avoidant attachment to coaches suggested lower perceptions of the quality of the relationship, and coaches' perceptions of relationship quality were impacted by student-athlete coach-athlete attachment avoidance. In Davis & Jowett's (2014) study of attachment, it was found that athlete attachment avoidance impacted relationship quality, and well-being. This relationship style indicated that athletes perceived low levels of support from their

coaches and judged the relationship to be unimportant. In the case of anxious attachment, researchers' findings indicate no significant relationship between anxious attachment and relationship quality, a fact that sport psychology researchers describe as "puzzling" (Davis & Jowett, p.7, 2014). One hypothesis that may explain these findings includes the fact that individuals displaying high levels of anxious attachment also experience high levels of maladaptive perfectionism (Gnilka, Ashby, & Noble, 2011). Coaches may perceive this perfectionism as hyper-focused interest in their sport or a strong work ethic, which may lead the coach to praise and support the anxiously attached individual to a greater degree.

The attachment framework is important to understanding student-athlete distress due to its influence on individual abilities to regulate emotions in adulthood. The researcher will next describe the current literature regarding athlete emotion regulation and the relationship between this factor and attachment, aggression, alcohol use, and psychological distress.

Emotion Regulation: A Framework for Understanding Student-Athlete Mental Health

Student-athletes must meet the same developmental and existential tasks of the non-athlete; however, they experience additional challenges that may negatively influence their ability to meet these requirements (Lanning, 1982; Parham, 1983). In fact, researchers have shown that involvement in intercollegiate athletics may reduce one's ability to meet the developmental tasks associated with college student development (Kornspan & Etzel, 2001). To describe the similarities and unique aspects of

psychosocial development among student-athletes compared to their non-athlete counterparts, Valentine and Taub (1999) applied Chickering's (1969; Chickering & Reisser, 1993), Psychosocial Model of Student Development to student-athletes. In Chickering's model, he described 7 specific and concrete vectors, or developmental needs that could summarize the development of student identity. Valentine and Taub (1999) utilized this framework to discuss the potential for tailored and specific counseling interventions for student-athletes based on the unique challenges they face. Therefore, it may be of use to understand the psychosocial implications of student-athlete development through this model.

One vector of importance in the Psychosocial Model of Student Development is Managing Emotions, which is the need for the individual to "integrate, express, and control" (Valentine & Taub, 1999, p.168) emotions for psychosocial development. Athletes experience rage, anger, frustration, and fear while competing in sport (Chickering & Reisser, 1993), emotions which are reinforced and even rewarded when their physical and emotional aggression is perceived as beneficial to athletic performance (Heyman, 1986). However these emotional states are generally not beneficial outside of competitive environments. Student-athletes who struggle to become flexible in the expression of these emotions may experience themes of depression, anxiety, and loneliness (Valentine & Taub, 1999). Further, Ferrante and Etzel (2009) propose that collegiate student-athletes may experience delayed psychosocial development due to a need to balance a personal life, academics, and athletics. Delayed development during the student-athlete's collegiate experience may result in academic, emotional, cognitive,

personal, and relational struggles (Valentine & Taub, 1999). Further, student-athletes who struggle to develop the ability to process emotional stimuli and regulate their emotions may struggle with themes of depression, anxiety, and loneliness.

Sport Psychology researchers have performed research studies in which cognitive, motivational, interpersonal, and physiological consequences of emotion regulation were examined through a performance lens (Uphill, McCarthy, & Jones, 2009). Preliminary research of emotion regulation in athletics has revealed that high physiological arousal (i.e., anxiety) decreased athletes attention, therefore potentially limiting their ability to perform at a high level. More recently, sport psychology researchers have conceptualized emotion regulation as a psychological skill of emotion control (Lane, Beedie, Jones, Uphill, & Devonport, 2011). Practitioners in the field of sport psychology teach athletes to increase or decrease emotional expression and change the quality of unwanted emotions to perform at a more optimal level. For example, Sport Psychologists may utilize the Individual Zone of Optimal Functioning (IZOF; Hanin, 2000) framework to develop a personalized emotion profile indicative of an athlete's optimal emotion-performance peak. Upon development of an athlete's profile, the sport psychologist teaches and employs cognitive and behavioral techniques to affect emotional expression on the field. A consultant may teach their client Progressive Muscle Relaxation (PMR; Wolpe, 1973), an emotion regulation technique often used with athletes to aid their awareness of muscle tension, that is a result of unwanted emotions impacting the athlete's performance (Thomas, Mellalieu, & Hanton, 2009). These approaches yield good results for some athletes in terms of one the field performance, however, theories of emotion

regulation have not been utilized for research into student-athlete experiences of mental health distress, including emotional distress, aggression, and consequences of alcohol use; problems that garner much national attention. Attachment across the lifespan plays a major role in individual abilities to regulate emotions; however, has yet to be explored in terms of its impact on student-athlete mental health.

Attachment and Emotion Regulation

Researchers have produced significant psychological and neurobiological research that validates the impact of attachments on emotion and emotion regulation from "cradle to grave" (e.g. Bowlby, 1979; Hazan & Shaver, 1987; Schore & Schore, 2008). Though the attachment behavioral system was the fundamental aspect of Bowlby's theory, he also wrote briefly on the role of emotion in attachment. Similar to his postulations about behaviors, Bowlby believed that emotions developed due to evolutionary pressures (Bowlby, 1979, as cited in Cassidy, 2008). Bowlby believed that conditioned experiences of happiness when supported by an attachment figure and sadness related to the loss of an attachment figure encourages the attachment bond to be maintained. Further, anger and protest are important in alerting the caregiver of a need for security (Bowlby, 1973). An understanding of the affective processes that occur between caregivers was not central to Bowlby's original theoretical framework of attachment. Though Bowlby was aware that both close and dysfunctional relationships could precipitate emotional distress and in turn, psychopathology, he had not organized attachment around this tenet. It was, however, upon Bowlby's insight that Sroufe and

Waters (1977) developed the foundation for an understanding of attachment as an affective bond that mediates the attachment behavioral system.

Emotions and their subsequent regulation are developmentally derived from and influential on intrapsychic and interpersonal processes and have implications for both mental and physical health across the lifespan (Cassidy, 1994; Diamond & Aspinwall, 2003). Through a multidimensional conceptualization, Diamond and Aspinwall (2003) suggested that emotions are characterized as subjective feeling states, which influence cognition and information processing, impact expressive displays and behaviors, and are sources of motivation; in essence, they act as physiological responses to one's environment. Regulation of emotions refers to the conscious and unconscious altering of emotional states as well as the modification of one's experience, behavior, expression, or situation so that one may experience a different emotion (Eisenberg, Fabes, Guthrie, & Reiser, 2000; Gross, 1999). Researchers of developmental theories of emotion and emotion regulation, including Attachment Theory, describe emotions as situation-response tendencies that evolve as a result of their functional significance to the individual (Carver & Scheier, 1990). Attachments, relationships characterized by a significant and specific emotional bond formed in infancy and childhood and lasting across the lifespan, are primarily responsible for the development of the emotional and neurological functions associated with emotion regulation.

According to attachment theorists, the responsiveness of caregivers is the primary influence on an individual's feelings of "felt security," the sense of safety developed by repeated interactions with attachment figures (Sroufe & Waters, 1977). However, those

individuals who do not perceive support to be available and/or effective rely on emotion regulation strategies of hyperactivation and deactivation to attempt to experience security (Mikulincer & Shaver, 2008). Hyperactivation, which describes the up-regulation of one's emotions, occurs when an individual's attempts to seek proximity to a caregiver are not effective and become more intense and frequent to demand a sense of felt security. In childhood and beyond, this up-regulation may be apparent by one's expression of needs and fears and exaggerated experiences of distress, pain, or injury (Mikulincer & Shaver, 2003). Deactivation, or the down-regulation of emotions, occurs in response to caregivers who withdraw from attachment behaviors, disapprove, or respond angrily. Individuals who down-regulate or suppress emotions deny worries, needs, and vulnerabilities and are often self-reliant when feeling threatened.

Infancy. Researchers have empirically validated the conceptualization of attachment as a proxy for the development of emotion regulation. Calkins, Dedmon, Gill, and Hungerford (2002) sought to determine differences in temperament and emotion regulation of six-month old infants. Three hundred and forty-six infants were placed into two groups. One group was identified as easily frustrated, whereas the other was labeled less easily frustrated based on the infant's ability to self-soothe, orientation to mother, ability to distract oneself, physical frustrations, orienting oneself to a specified object during a task, and visual exploration of the environment. Perhaps most profoundly, the researchers discovered that infants of the easily frustrated group were more likely to seek help from their mother, who was unavailable during the task. Infants of this group were less able to utilize emotion regulation strategies such as self-soothing or distraction to

self-regulate. This lesser ability to regulate one's emotions and exaggeration of distress to reach for a caregiver is often observed in infants utilizing hyperactivation of the attachment system, a representation of anxious attachment (Mikulincer & Shaver, 2008).

Neurobiological influence. Neurobiological research supports attachment as a theory of emotion and emotion regulation (Diamond & Aspinwall, 2003). The child is dependent on the caregiver to co-regulate their emotions due to their premature, developing central and autonomic nervous systems that are responsible for emotion regulation (Fox & Calkins, 2003). Thus, when an infant is experiencing a negative state, the caregiver serves the role of attuning to the child's cues, creating a state of affect synchrony (Schore & Schore, 2008). This state induces positive states of arousal in the infant, conditioning resilience through interactive repair. As the infant brain develops, the infant's experiences of co-regulation are predictive of their ability to regulate their emotions interactively and autonomously, when without contact with others (Schore & Schore, 2008). These findings confirm Bowlby's (1969/1982) initial predictions of attachment as an evolutionary mechanism that encourages the infant's level of proximity maintenance.

Childhood. Patterns of attachment developed and conditioned in infancy are predictive of future self-regulation in children. According to Fox and Calkins (2003), developing children maintain the goal of managing internal feeling states via facial, vocal, and physiological emotional expressions. The role of the caregiver is unchanged as the child ages. The attachment figure continues to provide social and emotional support to the child, encouraging further development of coping and emotion regulation. Waters

and colleagues' (2010) experimental study of 78 mother-child dyads provides confirmation of this assertion. In the study, mothers were given a battery of assessments while four-and-a-half year old participants were subject to a task that has been shown to induce moderate frustration. Expert researchers observed the child's emotions while responding to this task and the children and mothers were asked to respond to a video playback of the child's frustration. Secure attachment was predictive of a child's decreased likeliness to avoid conversations about negative emotions, level of understanding of negative emotions, and mother-child concordance about the child's feelings upon becoming distressed. Further evidence of parental influence on emotion regulation is apparent in Calkins and Johnson's (1998) study of mother-child dyads found that mothers who exhibited controlling behaviors in conditions that do not require parental control had children who employed maladaptive strategies to regulating their emotions. Clearly, research of attachment supports the notion that emotion, although regulated solely by the experience of others in infancy and childhood, is interactively regulated throughout across the entire lifespan (Schore & Schore, 2008).

Adulthood: Attachment security. Individuals who experience a sense of felt security do not rely on deactivation or hyperactivation strategies to regulate their emotions. In this case, attachment figures have been comforting and caring, responsive in providing protection and support, generate feelings of safety and security, and increase in the individual's feelings of self-worth and lovability (Mikulincer & Shaver, 2008). Securely attached individuals have positive expectations about the effectiveness of support and, as a result, their emotions are regulated appropriately. When experiencing

threatening stimuli, the secure adult experiences reassurance that support is available. For instance, when one's romantic partner returns home late from work, the secure adult does not become emotionally dysregulated (e.g. angry, distressed).

Torquati and Raffaelli (2004) examined the emotional experiences of secure (N = 41) and insecure (N = 28) undergraduate students during periods of isolation and while spending time with their friends, romantic partners, and roommates. A comparison of the two groups resulted in the findings that secure individuals experienced more frequent extreme positive emotions and higher levels of feeling loved, accepted, and secure. Numerous other studies have shown that secure individuals experience less distress than those that rely on hyperactivating or deactivating strategies of emotion regulation during periods of stress (e.g. Berant, Mikulincer, & Florian, 2001).

Adulthood: Attachment insecurity. In adulthood, those who rely on hyperactivating strategies of emotion regulation are categorized as having high attachment anxiety, whereas those who rely on deactivating strategies display high attachment avoidance. Although both strategies are attempts to protect oneself from the pain of the unavailability of the attachment figure in childhood, these patterns of emotion regulation represent insecure attachment and become maladaptive in adulthood (Shaver & Mikulincer, 2002). The avoidant individual suppresses emotional expression to present oneself to others as independent and emotionally disengaged. This compulsive self-reliance often has harmful consequences on important relationships (Cassidy, 1994). An anxiously attached individual regulates emotions and behaves quite oppositely. Via hyperactivation of the attachment system, the anxiously attached adult desires increased

attention and connection via the exaggeration or sustainment of distressing emotions. The anxiously attached individual copes with emotion-laden strategies that include self-blame and rumination (Shaver & Mikulincer, 2014). In addition to their findings related to securely attached individuals, Torquati and Raffaelli (2004) also found that insecure attachment is predictive of more frequent experiences of extreme negative emotions. Additionally, the researchers discovered that insecure individuals are 10 times more likely to feel extreme loneliness, 4 times as likely to feel irritated, and over 3 times as likely to feel extremely worried, discouraged, or miserable when alone.

Neurobiological support in adulthood. Though developed in pre-verbal stages of infancy, the impact of attachment on the individual's right brain functioning lasts into and throughout adulthood. As stated by Schore (2001), attachment strategies are "affectively burnt in" to the infant's right brain functioning. Unsatisfactory attachment experiences in infancy impact long-term right brain functioning due to poor neurological development and thus, the potential for pathogenic development as well (Watt, 2003). One such piece of evidence is in Buchheim and colleagues (2006) research, in which they utilized fMRI to determine that the right frontal cortex, a primary source of neurological functioning in emotion processing and regulation, is activated in participants while completing the Adult Attachment Projective instrument. Further, researchers report the right frontal lobe as the center for processing emotional experiences and connecting them to one's sense of self (Miller, Seeley, Mychak, Rosen, Mena, & Boone, 2001).

According to Diamond and Fagundes (2010) review of the psychobiological research on attachment, the stress-regulatory systems of the Hypothalamic-Pituitary Axis

(HPA) and autonomic nervous systems are greatly impacted by attachment, and subsequently, provide evidence of an individual's capacity to regulate emotions effectively in adulthood. High HPA reactivity, measured by levels of salivary cortisol, and autonomic nervous system reactivity, measured by increased heart rate, blood pressure, electrodermal activity, and respiratory arrhythmia, are evidence of difficulties in regulatory functioning found to be present in adults with high levels of anxious or avoidant attachment (Quirin, Pruesser, & Kuhl, 2008; Diamond, Hicks, & Otter-Henderson, 2008; Kidd, Hamer, & Steptoe, 2011). These findings provided evidence for attachment as a developmentally constructed regulatory function of adequate responsiveness from caregivers in one's formative years that are impactful across the lifespan.

Coach-athlete attachment and emotion regulation. With the knowledge that attachments across the lifespan are influential on the regulatory efforts of individuals, it is important to consider the context of the coach-athlete relationship when understanding student-athlete emotion regulation. The role of the athletic coach is believed by many to serve as an instructor and guide to optimal performance in athletics; however, the impact of coach on athlete at an interpersonal level is perhaps just as significant. Described as "a father-daughter relationship" or "another sort of father figure" (Hemery, 1986) by select elite athletes, it is clear that the bond between coach and athlete is significant. Researchers have found that coaches foster improved athletic performance, self-esteem, growth, and well-being (Horn, Lox, & Labrador, 2010) and have a significant impact on an athlete's emotions, cognitions, and behaviors (Jowett, 2003). Due to the nature and

inherent power differential (Stirling & Kerr, 2009) of this relationship, athletes often realize their vulnerability in the coach-athlete relationship. Although successful coaches have been found to display trust, respect, commitment, and understanding (Greenleaf, Gould, & Dieffenbach, 2001), athletes are often scrutinized as they attempt to perform at an optimal level. In certain scenarios, negative feelings of closeness, differing views, and incompatibility in behaviors have resulted in significant emotional distress among athletes (Jowett & Cockerill, 2003).

The lack of research regarding the analysis of coach-athlete attachment and its relationship with emotion regulation is noteworthy. As stated previously, attachment avoidance is representative of deactivation, one's inhibition to seek proximity, suppression of responses to threatening stimuli, and the down-regulation of both positive and negative affective states (Shaver & Mikulincer, 2002). In the example of coach and athlete, the athlete's fear or discomfort with closeness to a coach may lead to compulsive self-reliance in order to avoid distress. For instance, Josephs (2006) published an article regarding athletes' feelings of being overworked by coaches. One athlete shared, "There's a point where as players we don't know if it's OK to say something; in my head it makes me look bad to my coaches and I'd rather tough it out than feel the possible repercussions of being a tattle-tale." One could surmise that this athlete would rather rely on himself or herself and endure the distress they are experiencing rather than reach to the coach to potentially ease their distress.

Papathomas & Lavallee's (2012) narrative analysis of one particular coach-athlete relatonship provides insight into one athlete's history of distress with parental figures and

subsequently relationship with her coach in which she experienced sexual abuse. The athlete reports significant distress indicative of attachment anxiety prior to her experience of abuse. The athlete shared statements including, "I grew up believing everything was my fault and that I was really selfish," and, "I've always had this thing where I've felt people don't like me or worried that they don't like me or worried if I've done something wrong." The athlete described herself before her experience of abuse as nervous, self-conscious, worrisome, and anxious in regards to experiences with others is typical of hyperactivation of the attachment system. When she met her coach, the athlete described herself as vulnerable and without confidence. Although the objective of the article was not to describe her attachment to coach specifically, her subsequent relationship with her coach was characterized by fear of rejection and abandonment qualities that eventually were exacerbated by (and not the cause of) sexual abuse.

The paucity of athlete emotion regulation research in the coach-athlete attachment literature is a clear gap that needs to be addressed. Based on Davis and Jowett's (2010) findings that the athletic coach serves as an attachment figure, research that explores athlete attachment security in this relationship and how it impacts their ability to regulate their emotions is warranted. Clarification of the relationship between coach-athlete anxiety and avoidance with student-athlete emotion regulation may explain the prevalence of psychological distress, alcohol use, and aggression in student-athletes. Researchers of emotion regulation have theoretically and empirically derived an understanding of how individual emotion regulation impacts an individual's levels of

emotional distress, alcohol use, and aggression; however, these findings have yet to be applied to a student-athlete population.

Implications of Maladaptive Emotion Regulation

Sport psychology researchers have indirectly described arguments for applying attachment theory to such mental health factors as competitive anxiety, negative affect, and perceptions of threat (Carr, 2009). However, emotion regulation, developed and maintained via attachments, has yet to be explored with student-athlete populations. The majority of literature concerning the impact of emotion regulation on athletes occurs within the context of the individual's ability to perform at an optimal level (e.g. Uphill, McCarthy, & Jones, 2009). In other words, researchers have investigated the ability of athletes to regulate their emotions as a component of performance optimization (e.g. enhancement or diminishment of anger; Hanin, 2000) but not as a general factor in overall mental health. Analysis of the impact of athlete emotion regulation on levels of negative emotional distress, including emotional aspects of depression, anxiety, and general stress, as well as aggression, and alcohol use, are not only missing from the literature, but may suggest the need for increased mental health services with athlete populations. The researcher hopes to address this gap in the literature with the proposed study.

Psychological distress. In 2003, the NCAA conducted a study aimed at determining the prevalence of sports wagering by student athletes and the affect of this practice on the integrity of collegiate sports. In addition to eliciting information about betting behaviors, student-athletes from 2,003 teams at 1,032 NCAA affiliated

institutions were asked to respond to numerous prompts relating to how often they experienced specific emotions aligned with experiences of depression and anxiety. Within the previous three months, 41.3 % of the student-athletes surveyed reported that they felt so sad that nothing could cheer them up, 29.4% reported feeling hopeless, 30.3% reported felt worthless, 25.8% described feeling helpless, and 68.3% indicated that they felt that everything was an effort. Additionally, 87.1% reported feeling nervous and 70.9% described feeling restless and fidgety. The rates of distress reported by this large sample of student-athletes warrants further empirical research that may confirm the mental health experience of student-athletes, especially in the context of psychological distress and their emotions.

Bowlby (1969/1982; 1973) first formulated Attachment Theory to address issues of psychopathology in adolescents who had experienced "maternal deprivation." Over considerable time and through extensive research, Bowlby's theory evolved into an explanation of how supportive, available attachment figures condition emotion regulation in secure individuals, while unsupportive, unavailable attachment figures result in insecure attachment, distress, and dysregulation (Mikulincer & Shaver, 2007). Bowlby (1980) originally theorized that individuals develop depression and anxiety in adulthood as a result of unavailable attachment figures. Specifically, Bowlby believed that these conditions were the result of a) grief of the death of a parent, b) an inability to form a secure relationship with a parent despite numerous attempts, c) a parent communicating that the individual is unlovable or incompetent, or d) threatened by rejection and abandonment by parents (Dozier, Stovall-McClough, & Albus, 2008).

Significant empirical research exists to support a strong relationship between insecure attachment patterns and psychological distress. Insecure attachment styles have been found to predict depression in adolescence (Duggal, Carlson, Sroufe, & Egeland, 2001). Relatedly, depressed individuals more often rate their parents as unloving and moderately rejecting (Fonagy et al., 1996). Individuals experiencing symptoms of Generalized Anxiety Disorder have reported more experiences of rejection by parents, more anger, and a greater sense of vulnerability than those lacking symptoms (Cassidy, 1995). It must also be considered that attachments explain the development and maintenance of patterns of emotion regulation, a construct that has also been found to be predictive of psychological distress.

Research incorporating an understanding of attachment as a theory of emotion regulation indicates that high levels of attachment anxiety and/or avoidance limits one's ability to down-regulate negative affect (Mikulincer & Shaver, 2008) and subjects an individual to depression, anxiety, and other mental health concerns (Mikulincer & Shaver, 2007). According to Leahy (2002), self-reported depression and anxiety are linked to subjective assessment of ones emotions as uncontrollable, incomprehensible, different than others' emotions, and guilt. Individuals with a history of avoidant attachment pre-consciously suppress threat-related emotions including fear, sadness, or shame in order to maintain self-reliance. Although they may communicate a lack of fear, they actually experience heightened fear, anger, or sadness (Mikulincer, Florian, & Tolmacz, 1990). Anxiously attached people, on the other hand, exaggerate their distress by maintaining a state of hyper-activation (Mikulincer & Shaver, 2008). The

intensification of these negative emotions may result in significant anxiety due to hypervigilance, heightened recall of threat-related experiences, and rumination related to perceived threats. The role that emotion regulation plays in mediating the psychological distress and attachment has yet to be considered in the available research. Emotional distress associated with depression, anxiety, and stress can be explained by the over and/or under-regulation of emotions that occurs in individuals with a history of insecure attachment

Anxiety. Anxiety is characterized by the presence of an unwanted emotional response like maladaptive fear (Campbell-Sills, Ellard, & Barlow, 2014). According to Barlow (2002), this fear is the product of biological and psychological vulnerability stemming from developmental experiences that have enhanced emotional reactivity and caused the individual to experience the world as threatening. When stressors are present, the individual must respond, consciously or unconsciously, by utilizing emotion regulation strategies. When an individual employs maladaptive strategies of emotion regulation in an effort to reduce an unwanted emotional response the result is physiological arousal, behavioral efforts to diminish a response, subjective experiences of distress, and other sequalae (Campbell-Sills, Ellard, & Barlow, 2014). Maladaptive regulation of emotion that results in anxiety can be understood via the hypervigilance-avoidance model (Hofmann, Ellard, & Siegle, 2012). Individuals who experience anxiety are both hypervigilant of threatening stimuli and avoid the threat following one's initial assessment. This pattern has been witnessed across several anxiety disorders. For

example, individuals avoid the physiological arousal of panic attacks or avoid arousal by excessively worrying in generalized anxiety disorders.

A strategy that plays a significant role in the manifestation of anxiety is suppression, the inhibition of the behavioral expression of an emotion or the stuffing down of one's feelings (Campbell-Sills, Ellard, & Barlow, 2014). Researchers have found that when individuals suppress their emotional experience the result is increased sympathetic arousal, (Gross & Levenson, 1993), decreases in the experience of positive emotion (Gross, 2002) and increases in the experience of negative emotion (Gross & John, 2003). Suppression may be effective in decreasing behavioral manifestations of an emotion; however, does not ease one's emotional experience (Gross & Levenson, 1993). Attachment anxiety and avoidance have been linked to suppression of separation-related thoughts related to attachment figures (Fraley & Shaver, 1997; Mikulincer, Dolev, & Shaver, 2004).

Further evidence of suppression as a precursor to anxiety is evident in individuals diagnosed with Post-Traumatic Stress Disorder, who displayed a tendency to use suppression to attempt to regulate negative emotions after a task in which participants were asked to look at unpleasant images (Laura & Wild, 2014). Hu and colleagues' (2014) conducted a meta-analysis of 48 studies and found that a significant positive correlation exists between suppression and negative mental health indicators, including anxiety, depression, and overall negative affect. Although the strategy of emotional suppression has some adaptive qualities (i.e. protection from exposure traumatic events), the habitual use of suppression is clearly maladaptive (Bonnano, et al., 2004).

Depression. According to Joorman and Siemer (2014), mood disorders are the result of unsuccessful regulation of negative affect and difficulty responding to positive affect. In one sample of 284 adults, Marganska, Gallagher, and Miranda (2013) found attachment security to be predictive of lower emotion dysregulation and less depressive symptoms. Interestingly, Nolen-Hoeksema, Wisco, and Lyubomirsky (2008) report no differences in the quality of sadness between depressed and non-depressed individuals; however, subjects inability to adaptively regulate emotions engendered prolonged sadness and depression over time. Additionally, lack of emotional clarity (i.e., the ability to differentiate and consciously experience ones emotions) has been linked to depressive symptoms (Salovey, Stroud, Woolery, & Epel, 2002). Similarly to anxious individuals, those who experience depression may also utilize suppression.

Rude and McCarthy (2003) found that depressed participants (N=132) reported higher levels of suppression and lower levels of emotional clarity, less attention to their moods, and less willingness to disclose emotions. Emotion regulation is, however, different in the depressed individual. Depression is linked to the expectation of moods to last over long periods of time whereas anxiety is associated with one's lack of acceptance of emotions (Mennin, Holaway, Fresco, Moore, & Heimberg, 2007).

Rumination, the repeated mulling over of thoughts, is perhaps the primary maladaptive emotion regulation strategy associated with depression. Rumination is constructive in improving self-awareness and understanding; however, when used in response to distress, it involves repetitive reflection of thoughts with a negative valence and is often self-deprecating (Nolen-Hoeksema et al., 2008). According to Cassidy and

Berlin (1994), rumination about relationship loss is a behavior frequently witnessed in children with an ambivalent attachment style. Several empirical studies have described the link between rumination and depressive states. Ruijten, Roelofs, and Rood (2010) found that rumination, measured on the Ruminative Response Scale, mediated the relationship between attachment on the Inventory of Parent and Peer Attachment and depressive symptoms on the Beck Depression Inventory-II in a population of 455 adolescents. It must be noted; however, that the sample was 97.8% Caucasian and from three high schools in southern Netherlands, thus limiting the generalizability of the results. Also, Gilbert and Gruber (2014) asked individuals ($N = 31$) diagnosed with Major Depressive Disorder to ruminate about a future goal. As a result of rumination, depressive individuals experienced higher levels of negative emotion and higher cardiovascular arousal. Similarly to Ruijten et al.'s (2010) study, the majority of the sample was Caucasian (90%). Further, the samll sample size utilized in this study could have influence significance testing.

Stress and worry. Worry is a direct product of a relatively uncontrollable stream of thoughts that is characterized by negative affect and the individual's desire to solve issue that presents uncertainty (Borkovec, Robinson, Pruzinsky, & DePree, 1983). One can surmise that worry shares a number of similarities to rumination; however, worry has several distinguishing features. Worrying is a future-oriented, conscious attempt at controlling intolerable uncertainty (Nolan-Hoeskema et al., 2008). The unconscious, maladaptive goal of worry is avoidance of affect, whereas rumination is specifically focused on that negative affect.

Similarly to anxiety, worry is a process closely connected to the experience of fear that is the defining component of Generalized Anxiety Disorder (GAD; American Psychiatric Assocation, 2013) and the subjective experience of stress (Lovibond & Lovibond, 1995). According to the earlier described study by Marganska et al. (2013), attachment security is predictive of lower scores on a measure of GAD, whereas nonacceptance of emotions, impulsive emotion control, and a perceived inability to use emotion regulation strategies mediated attachment insecurity and GAD (N = 285). Additional studies verify these findings, including Mennin, Heimberg, Turk, and Fresco's (2005) study of undergraduate students (N = 538) with GAD. In comparison with a control group, the group with a GAD diagnosis displayed heightened intensity of emotions, greater negative reactivity to emotional experiences, difficulty self-soothing, and a lesser understanding of their emotional experience.

Aggression. The maximum effort swing of a racket in a non-contact sport like tennis or the crashing of helmet-to-helmet collisions in football both require an athlete to perform aggressively and, at times, violently to maximize their sport performance. According to Hanin (2000), the regulation of specific emotions is critical to athletic performance. Sport psychologists regularly use the Individual Zone of Optimal Functioning (IZOF), a personalized chart for identifying specific emotions that stimulate and detract from an athlete's overall ability, to enhance performance. For instance, anger has been found to fuel physiological arousal and anaerobic power, and thus is, for many athletes, an important aspect of optimal performance (Woodman et al., 2009). Athletes are therefore instructed to engage in anger to perform optimally; however, they must also

be able to down-regulate this anger in non-competitive situations. For the student-athlete, acts of on-field aggression and violence may not pay a salary, but may play a role in ensuring a position on a team, staying favor with teammates and coaches, and perhaps, guaranteeing another year of scholarship. Researchers have hypothesized that rewarded on-field aggression increases the probability that the athlete will act with aggression in other situations (Zillman, Johnson, & Day, 1974). Interestingly, researchers have yet to apply developmental theory to patterns of student-athlete off-the-field aggression. Woods (2011) suggests that an athlete's upbringing and disposition may be the reason that they chose to participate in sport, especially one in which violence begets optimal performance. The merit of this claim needs substantiation through empirical research. Analysis of student-athlete emotion regulation may therefore play a critical role in understanding differences in their aggression.

Researchers have posited that individuals displaying patterns of insecure attachment view others as untrustworthy and not dependable, causing them to experience anger, disappointment, and insecurity while acting aggressively toward others (Savage, 2014). Further, individuals with an insecure attachment style displayed greater levels of aggression in a sample of 255 adolescents (Buist, Deković, Meeus, & van Akus, 2004). Researchers of emotion regulation and sport performance have discussed the merit of expression of anger in coping with the perception of poor performance on the field (Uphill, & Jones, 2012). For instance, one athlete shared:

> You might be at a bar and a bloke will walk past and stiff you in the elbow and bump into you. So, okay, I let that go. And that might happen again later and just

> little things like that. Then, after a while, things build up and then enough is enough. That's when I might confront them and ask what their problem is. It might become a verbal confrontation, it then starts to get more heated and more aggressive; the aggression rises in both parties and it's more of a challenge, and things build up. That's when it can boil over into a fight. I could be also having a bad run, a bad day, a shocking game, or had a fight with family. It could be something like that—you're in a terrible mood and something might happen (Grange & Kerr, 2011, p. 368).

Evident in this athlete's remarks is the experience of anger suppression, which in this case, was an unsuccessful strategy at reducing his level of aggression. In fact, individuals with high levels of suppressed anger are more likely to behave aggressively (Tull, Jakupcak, Paulson, & Gratz, 2007) and are more likely to commit violent behaviors when under the influence of alcohol (Norstrom & Pape, 2010). On the other hand, the expression of anger, often performed by athletes as a cathartic emotional release, may be an under-regulated emotional response that is a component of aggressive behavior (Roberton, Daffern, & Bucks, 2012). Researchers have found that individuals who believe that expression of their anger will repair their mood will behave more aggressively when provoked (Bushman, Baumeister, & Phillips, 2001), and that aggression is an under-regulated response to feelings of emotional vulnerability in intimate relationships (Gardner & Moore, 2008).

It must also be noted that aggression is not always paired with the expression and regulation of anger. For instance, Sullivan, Helms, Kliewer, and Goodman (2010) found that fifth and eighth graders (N = 167) who reported difficulty with sadness regulation were more likely to experience expressive reluctance and manipulate or damage others' relationships than angry adolescents, who were more likely to be physically aggressive.

The study's results are, however, limited in their generalizability due to the nature of the participants. Fifth and eighth graders were sampled from high-crime neighborhoods with primarily low-income housing.

In another study, Cohn and colleagues (2010) designed a competitive reaction time game in which winners were allowed to shock opponents as a measure of aggression. Among 128 male undergraduate students from a large southeastern university, aggression was linked to difficulties with emotion regulation, specifically, low emotional clarity and emotional awareness on the Difficulties in Emotion Regulation Scale. Limitations of this study include a sample that was mostly white and all male, and the fact that the laboratory procedure has limited external validity. Regardless, these studies provide evidence that aggression is not an emotion specific factor, but the product of maladaptive emotion regulation strategies and competencies.

Alcohol use intensity and consequences. The reasons for higher rates of alcohol use among student-athletes have been described via a number of cognitive and behavioral theories. Social Norms Theory (Perkins, 2002) describes a discrepancy between an individual's subjective perceptions of alcohol use and the actual objective amount being consumed by their peers. As a result, students who do not normally drink heavily may feel pressure to drink more, whereas others who do drink heavily believe that they are using alcohol in the same fashion as their peers. Researchers have shown that student-athletes are more likely to binge drink because they believe this behavior is more normative than their non-athlete peers (Ford, 2007). Cox and Klinger (2011) developed the motivational model for alcohol use, which explains the social, coping, conformity,

and enhancement reasons why an individual consumes alcohol. Martens, Cox, and Beck (2003) found that student-athletes' socially-oriented drinking motives predicted negative alcohol-related consequences, including hangovers and regretful decisions, whereas coping motives predicted a number of negative consequences including regret, fighting, injury, trouble with police, and poor academics among others. Finally, alcohol outcome expectancies, one's beliefs about the anticipated effects of alcohol use, have been linked to patterns of student-athlete alcohol consumption (Brown, Goldman, Inn, & Anderson, 1980). Zamboanga, Horton, Leitkowski, and Wang's (2006) longitudinal study of female student-athlete alcohol use found that positive expectancies, for instance, the expectation that an individual would feel calmer or friendlier while intoxicated, was predictive of hazardous alcohol use. Although these theories of alcohol use in student-athletes have merit, researchers have yet to consider the role that vital developmental factors including style of attachment and emotion regulation play in understanding alcohol use patterns with this population.

Individuals unable to develop self-regulatory strategies (via the child-caregiver relationship) are more vulnerable to emotion-related mental health issues, including substance abuse. Emotion and regulation of emotion has been found to play a role in alcohol use. Khantzian (1997) has argued that substance use (i.e. self-medication) is a self-destructive affect regulation strategy often used by individuals attempting to relieve distress. The researcher posits that individuals who use substances to excess may have deficits in emotional development that hinders their ability to express their distress in interpersonal relationships. Several studies provide empirical support for a relationship

between insecure attachment and alcohol use. Labrie and Sessoms (2012) found that undergraduate students categorized by secure attachment to their mother reported significantly fewer negative consequences of alcohol use, and less overall alcohol use. These findings are illuminated by Khantzian (2013), who described substance addiction as an attempt to relieve unpleasant emotional experiences. This concept is supported in by a number of empirical studies. Nolan-Hoeksema and Harrell's (2002) analysis of rumination and drinking to cope, men and women who reported a propensity to ruminate described greater frequency of alcohol use (N = 1,132). Further, these participants also reported problems as a result of their alcohol use. The authors also found that men were more likely to binge drink in response to rumination, perhaps due to the fact that alcohol use is a more socially accepted form of regulation for men than women.

In one sample of 253 substance abusers, Handlesman and colleagues (2000) performed confirmatory factor analyses and determined that alcohol dependent individuals over-experience severe negative affect using the Buss-Durkee Hostility Index, and difficulty identifying feelings on a scale using the Toronto Alexithymia Scale. Although a seemingly rigorous study, of the 253 substance abusers, only 100 were alcohol dependent, making the study slightly less relevant to the current study's focus. Further, the participants in this study were diagnosed with severe substance use disorders. Future research regarding the association of these factors with an undergraduate student sample may be more applicable to the goal of this study.

Dvorak, Sargent, Kilwein, Stevenson, Kuvaas, and Williams' (2014) study of 1,758 undergraduate students reveals significant insight into the impact of emotion

regulation on alcohol use intensity and alcohol use consequences. Utilizing the Difficulties in Emotion Regulation Scale to measure student emotion regulation, the researchers revealed the predictive nature of difficulties with impulse control on the number of alcoholic drinks consumed and consequences of alcohol use experienced. Further, difficulties with goal-directed behavior and lack of emotional clarity predicted more reported consequences of alcohol use, whereas non-acceptance of emotional responses was indicative of consequences of alcohol use among individuals who reported more than zero consequences. A repeat study with a similar methodology and analysis with a student-athlete sample would provide significant clarity of the relationship between emotion regulation and alcohol use among student-athletes.

Summary

In this chapter, a review of student-athlete aggression, alcohol use, and emotional distress literature was performed. Attachment theory was discussed as a proxy for the development of emotion regulation abilities across the lifespan. Finally, the impact of an individual's ability to regulate emotions was discussed as predictive of aggression, alcohol use, and emotional distress. In Chapter III, the study methodology, the study research questions and associated hypotheses will be presented. Instrumentation, data collection, and proposed analyses will be discussed in full.

CHAPTER III

METHODOLOGY

In Chapter I, an overview of the study and research questions was presented. The purpose of this study is to compare the prevalence of aggression, alcohol use intensity and consequences, and psychological distress in male and female athletes and non-athlete students, to confirm the factor structure of the CAAS, and to test a mediation model of coach-athlete attachment, emotion regulation, aggression, alcohol use, and psychological distress. In Chapter II, a review of the literature exposed an absence of empirical research describing predictors of student-athlete distress, a need to further understand the impact of coach-athlete attachments, and varying conclusions about the degree to which student-athletes experience psychological distress, aggression, and consequences of alcohol use. In Chapter III, the researcher will present the research questions and hypotheses, participants, instrumentation, procedures, data analyses, and limitations of the proposed study. A pilot study was performed to test the proposed procedures of the dissertation and results are provided.

Research Questions and Hypotheses

The researcher generated five research questions for this study. The questions, as well as corresponding hypotheses, are presented below.

Research Question 1: What are the relationships between coach-athlete attachment avoidance, coach-athlete attachment anxiety, difficulties with emotion regulation,

aggression, alcohol use intensity, alcohol use consequences, psychological distress, and gender?

Hypothesis 1: Significant relationships will exist between the variables of interest as evidenced by results described in a correlation matrix. Specifically, higher levels of coach-athlete attachment avoidance and coach-athlete attachment anxiety will be related to higher levels of difficulties with emotion regulation, aggression, alcohol use, and psychological distress. Additionally, greater difficulties with emotion regulation will be related to greater levels of aggression, alcohol use intensity, alcohol use consequences, and psychological distress.

Research Question 2: Does the collected data confirm the two-factor structure of the Coach-Athlete Attachment Scale?

Hypothesis 2: The data will confirm the two-factor structure of the Coach-Athlete Attachment Scale.

Research Question 3: Does the predictive model of aggression, alcohol use intensity, alcohol use consequences, and psychological distress among student-athletes predicted by coach-athlete attachment and difficulties in emotion regulation present an acceptable fit for the sample data?

Hypothesis 3: The model will present an acceptable fit for the sample data as evidenced by global fit indices.

Research Question 4: How well do difficulties in emotion regulation mediate the relationship between coach-athlete attachment and student-athlete aggression, alcohol use intensity, and psychological distress?

Hypothesis 4: Difficulties in emotion regulation will mediate the relationship between coach-athlete attachment and aggression, alcohol use intensity, alcohol use consequences, and psychological distress.

Participants

The study's sample will be comprised of National Collegiate Athletic Association (NCAA) Division 1 student-athletes and non-athlete students from a mid-sized university in the southeastern United States. All participants must fall between the ages of 18 and 25 years. The researcher will ask participants from men's and women's teams to participate so that the sample will reflect gender diversity indicative of the overall population of student-athletes in the NCAA.

To determine sample size for the hypothesized model, the researcher will follow guidelines for Path Analysis. Per Kline (2011), the sample size-to-model parameters ratio of 20:1 is recommended for ideal analysis; however, a less ideal but still suitable ratio is 10:1. A ratio lesser than 10:1 may confound the results by eliminating trustworthiness in the results. The model will contain two exogenous variables (attachment anxiety, attachment avoidance) as well as five endogenous variables (difficulties in emotion regulation, aggression, alcohol use intensity, alcohol use consequences, and psychological distress), and 15 parameters. The specific parameters of the model include 6 paths, 5 disturbance variances (per each endogenous variable), 2 exogenous variances (per each exogenous variable), and 2 covariances of exogenous variables. Due to the complexity of the model being tested, the researcher will use the 10:1 ratio of sample size-to-model parameters for the analysis. To confirm the factor structure of the Coach-

Athlete Attachment Scale, the researcher will collect a minimum sample of 225 student-athletes to address sample-size to model parameters described by Kline (2011) and in anticipation of outliers and missing data.

G*Power, a power analysis program, was used to determine the appropriate sample size for the comparative analysis (MANOVA) involving groups of student-athletes and non-athlete students by gender. In order to guarantee a medium effect size (0.25) and high power (0.80) with an alpha of 0.05, a sample size of at least 100 participants will be needed. Four groups (male athlete, male non-athlete, female athlete, and female non-athlete) with a target of at least 25 participants per group will be used in a multivariate analysis of variance to determine differences in psychological distress based on group association. Therefore, at least 25 male and 25 female non-athlete students will be required to participate in the study. The researcher will target 60 non-athlete participants to address potential outliers and missing data. As described in the aforementioned determination of sample size for the path analysis, no additional student-athletes will need to be surveyed to run the group comparison due to the large number sampled.

Instrumentation

The instrumentation utilized in this study included (a) the Coach-Athlete Attachment Scale (CAAS; Davis & Jowett, 2013), (b) the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), (c) the Buss-Perry Aggression Questionnaire Short Form (BPAQ-SF; Bryant & Smith, 2001), (d) the Brief Young Adult Alcohol Consequences Questionnaire (BYAACQ; Kahler, Strong, & Read, 2005), (e) the

21- Item Depression, Anxiety, and Stress Scales (DASS-21; Lovibond & Lovibond, 1995), (f) the Balanced Inventory of Desirable Responding-Revised (BIDR; Paulhus, 1991; Steenkemp, De Jong, & Baumgartner, 2010) and (g) a brief demographics questionnaire that includes the 3-item Alcohol Use Disorder Identification Test - Consumption (AUDIT-C; Bush, Kivlahan, & McDonell, Fihn, & Bradley, 1998). Information related to each instrument is provided below.

Coach-Athlete Attachment Scale

Athlete attachment to coach was measured using the Coach-Athlete Attachment Scale (CAAS; Davis & Jowett, 2013). The CAAS is a 14-item measure that measures an athlete's self-reported responses across two factors: Avoidant Attachment and Anxious Attachment. Athletes are required to respond on a Likert scale ranging from 1 (very strongly disagree) to 7 (very strongly agree). In the three-factor model, higher scores are indicative of a greater level of attachment anxiety, avoidance, or security. In the two-factor model, lower scores on the attachment anxiety and avoidance scales are indicative of higher security. Examples of items on the CAAS include, *"Sometimes I am worried that my coach is not as committed to me as I am to them,"* on the Anxiety factor, and "*I do not turn to my coach for reassurance*," on the Avoidance factor. The item, "*I know I can rely on my coach*" is an example from the Secure factor of the three-factor CAAS.

Davis and Jowett (2013) have used confirmatory factor analysis to test both a two and three factor structure of coach-athlete attachment with a sample of 298 athletes from a variety of individual and team sports from university to international levels. The two-factor structure, modeled after Brennan, Clark, and Shaver's (1998) Experiences in Close

Relationships-Revised scales (ECR-R), is used to measure the dimensions of anxious and avoidant attachment continuously, rather than assessing "attachment styles," or categories of attachment that fail to address smaller differences. Researchers have argued that a three-order structure of attachment may be preferred due to critique of the ECR-R's lack of a factor for secure attachment (Backstrom & Holmes, 2007). However, the original two-factor structure developed for use in the ECR-R represents secure attachment as low scores on both anxious and avoidant attachment scales (Brennan, Clark, & Shaver, 1998). Both the two factor (SRMR = 0.09) and three factor (SRMR = 0.06) models of the CAAS were indicative of adequate model fit for their initial sample data. To compare the factor structures of CAAS, Davis and Jowett (2013) utilized a chi-square difference test and found that the three-factor structure did not provide a significantly better model fit than the original two-factor model.

Additional tests of the CAAS are evidence that the instrument is both reliable and valid. Cronbach's alpha estimates for the anxious attachment (.86), avoidant attachment (.82), and secure attachment (.86) factors of the CAAS were found to be above the recommended value of .70 (e.g. Nunnally, 1978). Convergent validity was established via high factor loadings for items across all factors in both the two (0.59 to 0.75) and three-factor (0.60 to 0.74) models. Davis and Jowett (2013) found discriminant validity among the factors of the two and three-factor structures for the CAAS, although the avoidant and anxious attachment factors were positively moderately correlated in the two-factor structure (r = .41) and three-factor structure (r = .42) and an inverse moderate correlation

was found for the secure and avoidant (r = -.71) as well as the secure and anxious (r = -.68) factors.

One limitation of the CAAS that this researcher intends to address throughout the course of this dissertation study is that it has not been used extensively to collect data. To date, the CAAS has been used in three published empirical studies (Davis & Jowett, 2013; 2014; Davis, Jowett, & Lafreniere, 2013). Although the researchers have confirmed the factor structure of the two and three-factor models of the CAAS in their studies, this researcher will perform a Confirmatory Factor Analysis (Research Question 3) once the data has been collected to confirm the structure of the proposed path diagram (Figure 1).

Buss-Perry Aggression Questionnaire – Short Form

The Buss-Perry Aggression Questionnaire – Short Form (BPAQ-SF; Bryant & Smith, 2001) is a 12-item self-report survey instrument refined from the original Buss-Perry Aggression Questionnaire (BPAQ; Buss & Perry, 1992). The BPAQ-SF, like the original BPAQ, measures aggression across four factors: physical aggression, verbal aggression, hostility, and anger. Examples of items on the BPAQ-SF include: "*Given enough provocation, I may hit another person*," and "*Sometimes I fly off the handle for no good reason*." Survey participants are asked to respond on a Likert scale ranging from 1 (*Extremely uncharacteristic of me*) to 5 (*Extremely characteristic of me*). A multigroup CFA that included the superordinate aggression factor of the BPAQ-SF did not significantly worsen the model fit. Moderate goodness of fit indices were found when when this superordinate factor of aggression was included in the measurement model

(e.g. CFI = .92; Bryant & Smith, 2001). Therefore, a total score to measure aggression may be utilized. In addition to adequate factor structure of the measurement model, Bryant and Smith found that the BPAQ-SF is both reliable and valid. Reliability coefficients for the four factors ranged from .70 to .80 across three separate samples of undergraduate students (n = 307, 200, 306). Further, each of the four factors of the BPAQ-SF displayed construct validity. The Physical Aggression factor of the BPAQ-SF was strongly correlated with the Buss-Durkee Physical Assault scale (.85), the Verbal Aggression factor with the Buss-Durkee Verbal Hostility scale (.64), the Anger scale with the MAI Anger Arousal scale (.91), and the Hostility scale with the Cook-Medley Hostility scale (.89).

Brief Young Adult Alcohol Consequences Questionnaire

The Brief Young Adult Alcohol Consequences Questionnaire (BYAACQ, Kahler, et al., 2005) is a 24-item survey instrument that serves as a parsimonious model of the Young Adult Alcohol Consequences Questionnaire (YAACQ; Read, Kahler, Strong, Colder, 2004). The instrument was developed using item response theory to measure consequences of alcohol use based on eight domains of problematic drinking: social-interpersonal consequences, impaired control, self-perception, self-care, risk behaviors, academic/occupational consequences, excessive drinking, and physiological dependence.

Kahler and colleagues (2005) sampled 340 undergraduate students in introductory psychology classes to test the items of the model. Participants respond to dichotomous (yes/no) statements, indicating whether or not they had experienced the listed consequences of alcohol use. A sum of the "yes" responses is calculated as a raw total

score and can be compared against the original sample. Examples of questions on the BYAACQ include: "*My drinking has gotten me into sexual situations I later regretted*," "*I have driven a car when I knew I had too much to drink to drive safely*," and "*I have neglected my obligations to family, work, or school because of drinking*." The internal consistency of the BYAACQ is considered very good, with a Cronbach's Alpha of .83. The BYAACQ has shown high correlations with its parent measure, the YAACQ (r = .95), and another instrument developed to measure problems with alcohol use, the Rutgers Alcohol Problem Index (r = .78). Higher scores on this measure indicate a greater level of severity of alcohol use that includes distress and impairment from drinking in multiple areas of one's life.

Difficulties in Emotion Regulation Scale

The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a 36-item measure designed as a response to differing definitions of emotion regulation and to measure clinically relevant difficulties related to emotion dysregulation. Gratz and Roemer's (2004) instrument is based on a six-factor, comprehensive understanding of emotion regulation that includes Nonacceptance of Emotional Responses, Difficulties Engaging in Goal-Directed Behavior, Impulse Control Difficulties, Lack of Emotional Awareness, Limited Access to Emotion Regulation Strategies, and Lack of Emotional Clarity. The emotional competence approach to emotion regulation (Saarni, 1999) was developed to highlight the prerequisities to effective regulation of emotion. This broad conceptualization of emotion regulation includes behavioral, cognitive, and regulatory components important to the regulation process (Gratz & Roemer, 2004). In the initial

study of the DERS (N=357) the instrument demonstrated a high Cronbach's alpha (.93), and an alpha greater than .80 for each subscale. In a second sample, a strong test-retest reliability of .88 was found for the overall instrument. The DERS produces an overall score as well as scores for each subscale. A higher total score on the DERS reflects greater levels of emotion dysregulation. Examples items from the DERS include, "*I am clear about my feelings*," and, "*When I am upset, I become out of control*."

Construct validity was found by examining correlations between results of the DERS, the Acceptance and Action Questionnaire (AAQ; Hayes, et al.), the Generalized Expectancy for Negative Mood Regulation Scale (NMR; Catanzero & Mearns, 1990), and the Emotional Expressivity Scale (EES; Kring, Smith, & Neale, 1994). Correlations to experiential avoidance or emotional expressivity for the overall measure as well as each subscale were significant. When controlling for the NMR, the subscales of the DERS accounted for a significant amount of the variance in experiential avoidance or emotional expressivity, thus supporting the instrument's use as a measure of emotion regulation. Further, results on the DERS have found to be predictive of frequency of deliberate self-harm and frequency of intimate partner abuse, two related behavioral outcomes to emotion dysregulation (Gratz & Roemer, 2004).

The 21-Item Depression Anxiety and Stress Scales

The short form of the Depression Anxiety Stress Scales (DASS-21; Lovibond & Lovibond, 1995) is a 21-item measure comprised of three discriminant scales: Depression, Anxiety, and Stress. The original version, the DASS (Lovibond & Lovibond, 1995) is a 42-item form that is more often utilized for clinical assessment, while the

DASS-21 is the preferred method for research due to its brevity, lower intercorrelations of factors, and fewer cross-loading items (Antony, Bieling, Cox, Enns, & Swinson, 1998). The majority of samples used in scale development of the DASS were non-clinical due to the researchers' stance that depression and anxiety are dimensional rather than categorical (Crawford & Henry, 2003). According to Clark and Watson (1991) and their review of the psychometric data associated with ten instruments for measurement of anxiety and depression, a tripartite model of anxiety and depression best captures the associated data. Construction of the DASS was formed based on this model, with a depression scale measuring anhedonia, the absence of positive affect, an anxiety scale that measures physiological arousal and fearfulness, and a stress scale that measures general affective distress, (Lovibond & Lovibond, 1995) and has been found to correlate with the presence of Generalized Anxiety Disorder (GAD) and negative affectivity. Higher scores on each scale represent greater levels of the associated factor. Examples of items on the DASS-21 include, "*I felt that life was meaningless*," on the depression scale, "*I felt scared without any good reason*," on the anxiety scale, and "*I found it difficult to relax*," on the stress scale.

In a large-scale study of undergraduate students (N = 887), Osman and colleagues (2012) examined the factor structure and reliability of the DASS-21. Upon Henry and Crawford's (2005) assertion that a general distress factor exists within the structure of the DASS-21, the researchers allowed each item to load onto a general factor in addition to other domain-specific factors (i.e. depression, anxiety, stress). Analysis of the DASS-21 resulted in findings that many of the intercorrelations between the three scales of the

DASS-21 were moderately high and that 61.9% of the common variance in item scores were due to a factor of general distress. Further, the Stress factor (.84), Depression factor (.75), and Anxiety factor (.73) correlated highly with the general distress factor. Finally the hierarchical coefficient for the general distress factor suggested that 87% of the variance in the overall instrument was due to this general distress factor. These findings suggest that the DASS-21 total score, measured on the general distress factor, is suitable for analysis of one's level of psychological distress. A total score will be used in this researcher's study to measure psychological distress. Higher total scores on the general distress factor are indicative of greater psychological distress.

Osman and colleagues (2012) also sampled undergraduate students (N = 410) to establish concurrent validity and internal consistency of the DASS-21. The researchers found that the total score on the DASS-21 correlates significantly with a number of valid measures including the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996), the Beck Anxiety Inventory (BAI; Beck & Steer, 1990), the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983), and five scales of the Mood Anxiety Stress Questionnaire (MASQ; Watson, Clark, Weber, Assenheimer, Strauss, & McCormick, 1995), including the anhedonic depression, anxious arousal, general distress-depression, general distress-anxiety, and mixed depression-anxiety scales. The coefficient omega, used to determine internal consistency of hierarchical models, was .89 for the total score, indicating high reliability.

Balanced Inventory of Desirable Responding

Socially Desirable Responding (SDR) occurs when an individual responds to an instrument in a way that presents them as culturally desirable (Steenkamp, et al., 2010). As a result, response bias that may compromise the validity of survey results is introduced to the data. The current standard in SDR research is to measure the construct across two factors: "superhero-like" egoistic response tendencies (ERT) and "saint-like" moralistic response tendencies (MRT; Paulhus, 2002). ERT occur when an individual wishes to project assertiveness, dominance, control, autonomy, mastery, power, and independence, while MRT occur when one desires an association with approval, nurturance, connectedness, love, affiliation, and belonging (Paulhus & John, 1998). According to Paulhus (2002), socially desirable responses may occur unconsciously or with deliberate intent; however, researchers have argued that it is not yet possible to distinguish unconscious from conscious bias (Steenkemp, et al., 2010).

The researcher will include an abridged and revised form of the Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1991; Steenkemp, et al., 2010), to measure Socially Desirable Responding (SDR). The revised BIDR is a 20-item multidimensional instrument that incorporates the Self-Deceptive Enhancement and Impression Management subscales of the original instrument to measure ERT and MRT. Steenkemp and colleagues (2010) tested the abridged BIDR with a sample of over 12,000 respondents across 26 countries to identify patterns of SDR when given a measure of personality and of personal values. The reliability of the ERT scale was .67 and the MRT scale was .73, which the authors considered to be strong considering documented

findings that negatively scored items often contribute to deficits in reliability in non-Western countries. Further, the ERT and MRT correlated at an average of .31, displaying discriminant validity between the two factors.

To determine the impact of socially desirable responding on the factors of interest, the researcher will analyze the associations between the BIDR instrument total score and other instruments or subscales of the surveys. Steenkemp and colleagues (2010) suggest that when the standardized regression coefficient between the BIDR and subsequent factor exceeds .2, the individual may have responded in a socially desirable fashion. The regression coefficient of .2 is equal to a small-to-medium effect size. These results must be analyzed and discussed with caution, especially when related to a factor that is highly sensitive.

Demographics Questionnaire

Socio-demographic information was collected to contextualize the findings and control for certain variables that may impact the results of the study. The researcher developed a 12-item demographics form included in the packet of surveys for distribution. Items were created to assess, year in school, age, gender, ethnicity, length of relationship with coach described in CAAS assessment, sport of participation, GPA, and first generation college student status. Sport of participation was included to identify contact (i.e. soccer, basketball, football, rugby), from non-contact sport (e.g. track and field, tennis, golf, etc.; Lemieux, McKelvie, & Stout, 2002). The demographics questionnaire was included to describe the sample and for use in the comparative analysis examining differences across gender and sport participation in research question 2.

Alcohol Use Disorder Identification Test – Consumption

The AUDIT-C is a screening test for heavy drinking and/or alcohol abuse or dependence (Bush et al., 1998). Derived from its parent instrument, the full AUDIT (Saunders, Aasland, Babor, De La Fuente, & Grant, 1993), this 3-item version has shown to perform similarly to its parent instrument on detecting heavy drinking patterns. The instrument's 3 items include, *"How often do you have a drink containing alcohol?"* as well as, *"How many standard drinks containing alcohol do you have on a typical day?"* and, *"How often do you have six or more drinks on one occasion?*" Responses to these items follow a 5-item multiple-choice format that is scored on a point system. The range of possible scores on the AUDIT-C is 0-12 (a high score of 4 points per item), in which endorsed items that indicate greater frequency of drinking or amount of alcohol consumed are scored higher. Thus, higher scores are indicative of problematic drinking and the potential for drinking to be impacting the individual's safety. A cutoff score of 4 for men and 3 for women is considered to be indicative of hazardous drinking patterns; however, an exception exists when all points are totaled from the first question that asks about frequency of alcohol use per week.

According to DeMartini and Carey (2012) in their study of hazardous college student drinking, the AUDIT-C had yet to be optimized for use with college student populations. The authors used criteria determined by the National Institute on Alcohol Abuse and Alcoholism and Kokotailo and colleagues' (2014) definition of at-risk heavy drinking to set new gender-specific cutoff scores for this population. At-risk heavy drinking was defined as consumption of 14 standard drinks for males or 7 standard drinks

for females in a week and/or four heavy drinking episodes (5 drinks for men, 4 drinks for women) in one month's time. The researchers sampled 405 college students who have consumed at least one alcoholic beverage over the past calendar year in a comparison of the performance of the AUDIT and AUDIT-C. In this sample, the AUDIT-C outperformed the AUDIT in detecting at-risk drinkers and confirmed the need for gender-stratified cutoff scores. Due to the results of this study, DeMartini and Carey concluded that when sampling college students, the cutoff score for males should be 7, whereas the cutoff score should be 5 for females.

Procedures

The researcher will address student-athlete representatives of the Student-Athlete Advisory Council (SAAC) at one sampled university to discuss the purpose of the dissertation study, time needed to complete the study, the risks, and the benefits of participation. Representatives of each athletic team at the university will choose to ask their team to voluntarily participate if they wish to do so. If potential team members do not want to participate, they can avoid doing so or withdrawal without any penalty. In addition to representatives attending the SAAC meeting, those student-athletes not attending the meeting will also have the right to opt out of participation in the study. The researcher will schedule meetings independently with each team to survey the participants. Additionally, the sample will be made up of student-athletes from other universities who will be asked to participate electronically. These participants will be required to complete the survey packet using Qualtrics, a web-based survey tool that assigns coded names to participants to conceal identifying information. Student-athletes

unable to schedule times to participate in the study in person will have the option to take the survey packet using Qualtrics as well.

Non-athlete participants for the study will be recruited from undergraduate courses from the departments of Kinesiology, Public Health, and Counseling and Educational Development. Instructors from these courses will be provided with information regarding the purpose of the study, an estimate of the time needed to collect the data, and a form to confirm permission for data collection. Once permission to collect data is granted, the researcher will attend classes to invite students to participate in the study. All data will be collected at the beginning of classes and study halls to decrease the chance that students would opt to leave the class over participation in the study. All students will receive the informed consent form explaining an overview of study details and instructions, and referral information regarding mental health support at their respective university.

Several measures will be taken to ensure confidentiality of participant responses. The researcher will request a waiver of signed consent from the Institutional Review Board to ensure confidentiality of participants and decrease the likelihood of answers reflecting social desirability. Additionally, the participants will enclose their completed instruments in a manila envelope and will place their completed surveys in a box at the front of the room so that completed instrumentation does not change hands prior to the principal investigator leaving with the completed survey packets. All paper-and-pencil participants will have the option to provide an email address on a piece of paper separate from their survey packet to be enrolled in a raffle for a 20 dollar Amazon gift card.

Similarly, participants who take the electronic survey may be enrolled in the raffle by opening a separate survey that is unlinked to their survey responses and providing their email address. The e-mail addresses provided for the raffle will be numbered and chosen at random. One in ten participants who have provided an e-mail address will receive a gift card.

Participants will be given appropriate instructions for completion once the researcher receives approval from the Institutional Review Board. Individuals who have elected to participate will be provided with a copy of an informed consent form that outlines the purpose of the study, efforts made by the researcher to ensure confidentiality, potential risks of participation, and the voluntary nature of the study. The researcher will allow 20 minutes for the completion of the six required instruments and demographic questionnaire for athletes, and 15 minutes for the completion of the four required instruments and demographic questionnaire for non-athlete students. Non-athlete students will not be required to take the CAAS due to their lack of athletic participation and thus, lack of attachment to a coach. Additionally, difficulties in emotion regulation will only be measured to test the predictive model based on the responses of student-athletes. Due to the fact that information regarding psychological distress associated with depression, anxiety, and stress, aggression, and consequences of alcohol use will be assessed, participants will be provided with campus and community counseling resources.

Data Analyses

The primary data analysis in this study will be path analysis, which will be used to investigate the viability of an integrative, theoretical model of coach-athlete attachment

and its indirect effects on emotion-related mental health outcomes through difficulties in emotion regulation. An overview of the five research questions, variables, and analyses to be performed in this study can be found in Table 1.

Table 1

Research Questions and Analyses

Research Question	Independent Variables	Dependent Variables	Mediators	Analysis
1. What are the relationships between coach-athlete attachment avoidance, coach-athlete attachment anxiety, difficulties in emotion regulation, aggression, alcohol use intensity, alcohol use consequences, psychological distress, gender, and athletic status?	N/A (all variables will be correlated)	N/A (all variables will be correlated)	N/A	Pearson r Correlation
2. Does the collected data confirm the two-factor structure of the Coach-Athlete Attachment Scale?	Attachment Anxiety (CAAS) Attachment Avoidance (CAAS)	N/A	N/A	Confirmatory Factor Analysis (CFA)
3. Does the predictive model of aggression, alcohol use intensity, alcohol use consequences, and psychological distress among student-athletes predicted by coach-athlete attachment and difficulties in emotion regulation present an acceptable fit for the sample data?	Attachment Anxiety (CAAS) Attachment Avoidance (CAAS)	Difficulties in Emotion Regulation (DERS) Psychological Distress (DASS-21) Alcohol Use Intensity (AUDIT-C) Alcohol Use Consequences (BYAACQ) Aggression (BPAQ-SF)	N/A	Path Analysis

Table continues

Research Question	Independent Variables	Dependent Variables	Mediators	Analysis
4. How well do difficulties in emotion regulation mediate the relationship between coach-athlete attachment and student-athlete aggression, alcohol use intensity, and psychological distress?	Attachment Anxiety (CAAS) Attachment Avoidance (CAAS)	Difficulties in Emotion Regulation (DERS) Psychological Distress (DASS-21) Alcohol Use Intensity (AUDIT-C) Aggression (BPAQ-SF)	Difficulties with Emotion Regulation (DERS)	Path Analysis & Sobel Test for Mediation

The researcher will enter data into the statistical analysis program, SPSS Version 20.0, to understand relationships between the study variables and participant demographics. In addition, the research will utilize LISREL Volume 8.8 to perform a Confirmatory Factor Analysis (CFA) to confirm the number of factors associated with Davis and Jowett's (2013; 2014) research with the CAAS, and a Path Analysis to determine if the collected data fit the theoretical model and the degree to which difficulties in emotion regulation mediate coach-athlete attachment and psychological distress in student-athletes.

Upon the recommendation of Davis and Jowett (2013; 2014), the researcher will verify the factor structure of the CAAS, as described in research question 2. This researcher will perform a Confirmatory Factor Analysis (CFA) to test the structure of the theorized relationships between the hypothesized latent constructs associated with coach-athlete attachment (Raykov & Marcoulides, 2006). In their development of the CAAS, Davis and Jowett (2013) proposed both a two and three-factor structure of the CAAS,

which they describe as both having utility; however, a chi-square difference test resulted in no significant differences between the models. Thus, the researcher will attempt to confirm the two-factor structure of the model. Currently, the CAAS has only been used in a small number of studies and requires further confirmation of its factor structure to ensure that results can be considered reliable and valid.

To address research question 3, the researcher will test goodness of fit of the theoretical model proposed to see if exogenous variables significantly predict the endogenous variables of the structural model. The model will contain two exogenous variables (attachment anxiety, attachment avoidance) as well as five endogenous variables (difficulty in emotion regulation, psychological distress, aggression, alcohol use intensity, and alcohol use consequences.), and 16 parameters. The specific parameters of the model include up to 6 paths, 5 disturbance variances (per each endogenous variable), 2 exogenous variances (per each exogenous variable), and 2 covariances of exogenous variables. To determine goodness of fit for the theoretical model, indices of absolute fit will be calculated to observe if the model is able to reproduce the sample covariance matrix (Crockett, 2012). Specifically, indices of fit including model Chi-Square, root mean square error of approximation (RMSEA), close fit index (CFI), and standardized root mean square residual (SRMR) for the proposed model will be determined and compared to the appropriate assumed cutoffs of goodness of fit. A significant goodness of fit index indicates that the model is acceptable for all indices other than model Chi-Square, in which significance implies poor model fit.

To answer the fourth and final research question, the previously described Path analysis can be used. A path model is utilized to describe the direct and indirect effects between observed variables (Kline, 2011). When identifying direct effects, or path coefficients, one can simply use Multiple Regression to interpret them. In this case, each of the involved paths associated with the mediation model are individually calculated. Multiple Regression is used to determine the contributions of predictors to variations in outcomes (Heppner, Wampold, & Kivlighan, 2008). The researcher is interested in understanding the indirect effects of coach-athlete attachment, which act as predictor variables within the model. Thus, difficulty in emotion regulation, the mediating variable in this model, is thought to transmit a significant amount of the effect of attachment onto psychological distress and aggression and alcohol use. The impact of the mediating variable will be analyzed via the Sobel Test for Mediation (Kline, 2011).

Limitations

A number of a priori limitations exist for this study. Data will be collected from three Southeastern universities of the United States, thus limiting the generalizability of the results. Additionally, student-athletes were selected via purposive sampling and non-athlete students by convenience, of which neither is truly random. An assumption of Path Analysis is that manifest variables are measured without error (Kline, 2011). To account for this error, the researcher will use instruments with high reliability, evidenced by a high Cronbach's Alpha (>.70). A confound specific to the MANOVA is the fact that many individuals do not identify themselves within the gender binary. That is, the options of "male" and "female" are limiting, and further, may induce feelings of negativity

toward the completion of the assessments as a result. To address this concern, the researcher will allow participants to write in their gender; however, these data will not be useful for the study unless a significant amount of athletes belong to this group. Finally, there are many mediators that explain the variance in distress predicted by attachment. These include low self-esteem, ineffective coping, maladaptive perfectionism, and social competencies, among others (Wei, Shaffer, Young, & Zakalik, 2005). Without controlling for these and other mediators, they may be playing some role in the predictive nature of the model.

Pilot Study

A pilot study was conducted to test procedures, instruments, and initial relationships among factors prior to the full dissertation study. The researcher aimed to determine (a) the efficiency of the procedures and instruments to be utilized in the full dissertation study, (b) the length of time needed for athletes and non-athletes to complete their respective survey packets, (c) if any directions or items were unclear to participants, and (e) relationships among the measured variables. 64 participants completed the survey packet and were given specific instructions for the pilot study. Instrument reliability, descriptive statistics of the pilot sample, and correlations between measured factors will be described. Finally, a discussion of implications for the main dissertation study will be held.

Instrumentation

All athlete and non-athlete participants voluntarily completed their respective survey packets. Survey packets were completed in the following order: (a) the 24-item

Brief Young Adult Alcohol Consequences Questionnaire (BYAACQ; Kahler et al., 2005); (b) the 36-item Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004); (c) the 14-item Coach-Athlete Attachment Scale (CAAS; Davis & Jowett, 2013); (d) the 12-item Buss-Perry Aggression Questionnaire-Short Form (BPAQ-SF; Bryant & Smith, 2001); (e) the 21-item Depression, Anxiety, and Stress Scales (DASS-21; Lovibond & Lovibond, 1995); (f) the 20-item Balanced Inventory of Desirable Responding-Revised (BIDR; Paulhus, 1991; Steenkemp et al., 2010); and (g) a 12-item demographic questionnaire, which includes the 3-item Alcohol Use Disorder Identification Test – Consumption (AUDIT-C; Bush et al., 1998). The researcher mistakenly left one item out of the DERS for all participants, thus only 35 items were assessed. Non-athletes did not participate in taking the CAAS and DERS as these instruments were only required to test the structural model. Therefore, non-athlete survey packets consisted of 89 items, whereas student-athletes completed 141 items. Additionally, participants were asked to circle any items or instructions that were difficult to comprehend. Room for further comments about how the study could be improved was allowed at the bottom of the demographic form. The primary researcher used a stopwatch to determine the length of time participants used to take the survey packet. Cronbach's alpha scores were determined for each factor, including the anxiety and avoidance sub-scales of the CAAS (Table 2).

Table 2

Number of Items per Scale and Alpha Coefficients

Instrument/Subscale	N	Number of Items	Alpha Coefficient
BYAACQ Total	60	24	.811
DERS Total	27	35	.859
Attachment Anxiety	29	7	.830
Attachment Avoidance	29	7	.965
BPAQ-SF Total	59	12	.874
DASS-21 Total	57	21	.861
AUDIT-C	54	3	.743

Note. AUDIT-C = Alcohol Use Disorder Identification – Consumption; BPAQ-SF = Buss-Perry Aggression Questionnaire – Short Form; BYAACQ = Brief Young Adult Alcohol Consequence Questionnaire; DASS-21 = Depression, Anxiety, and Stress Scales; DERS = Difficulties in Emotion Regulation Scales

Participants

Student-athlete participants were recruited from the Student-Athlete Advisory Committee (SAAC) at one university. The researcher briefly described the study and expected time commitment to student-athletes representing each of the university's NCAA affiliated athletics teams. SAAC representatives then identified times that their teams would be willing to participate in the survey. Non-athlete participants were recruited from undergraduate courses of the Counseling and Educational Development department. To participate, students had to be 18-25 years of age and enrolled in at least 12 credit hours at the university. The researcher read a recruitment script to all eligible student-athletes and non-athletes who then determined if they would like to participate. Once completing the survey, each participant placed their completed survey packet into a manila envelope and placed it in a collection box at the front of the room.

The demographic make-up for the participants of the pilot study can be observed in Table 3. Sixty-four students participated in the pilot study. Thirty student-athletes and thirty-four non-athletes from two classes made up the participant sample. The majority of the participants were female (*n* = 54, 88.5%). The seven male participants were non-athlete students who indicated that they were full-time students at the university. The majority of participants reported being White (non-hispanic; *n* = 33, 54.1%) or Black/African-American/Caribbean (*n* = 16, 26.2%). The distribution of White (*n* = 14, 50.0%) and Black/African-American/Caribbean (*n* = 11, 39.2%) athletes was much closer in the athlete sample than in the non-athlete sample. The majority of student-athletes reported first-year undergraduate class year status (*n* = 10, 35.7%), whereas the non-athlete majority of the sample was made up of third-year undergraduates (*n* = 12, 36.4%). As assumed by the class year, the student-athlete sample was primarily 18 years of age (*n* = 9, 33.3%) and the majority of the non-athlete sample was older, with 16 of the non-athlete sample aged 20 or 21 (48.4%). Thirteen student-athletes (46.5%) and 13 non-athletes (39.3%) reported a grade point average between 3.0 and 3.5. The majority of student-athletes indicated that their mothers had either a college degree (*n* = 11, 39.2%) or graduate degree (*n* = 11, 39.2%) and their fathers obtained a graduate degree (*n* = 12, 42.9%). Most of the non-athlete students' mothers (*n* = 12, 36.3%) and fathers (n = 14, 42.4%) had college degrees. The length of the student-athlete sample's relationship with their principal sports coach was most often under 1 year (*n* = 17, 60.7%), and 61.5 percent (*n* = 16) participated in a contact sport.

Table 3

Demographics of Pilot Study Participants

	Athlete		Non-athlete		Total	
Demographic Characteristic	*n*	%	*n*	%	*n*	%
SEX						
Male	0	0	7	21.2	7	11.5
Female	28	100	26	78.8	54	88.5
TOTAL	28		33		61	100.0
ETHNICITY						
White (Non-Hispanic)	14	50.0	19	57.8	33	54.1
Black/African-American/Caribbean	11	39.2	5	15.1	16	26.2
Hispanic or Latino/a	1	3.6	1	3.0	2	3.3
American Indian, Alaskan, or Native Hawaiian	0	0.0	1	3.0	1	1.6
Asian or Pacific Islander	0	0.0	3	9.1	3	4.9
Biracial or Multiracial	2	7.1	1	3.0	3	4.9
Other	0	0.0	3	9.1	3	4.9
TOTAL	28		33		61	100.0
CLASS YEAR						
1st year undergraduate	10	35.7	1	3.0	11	18.0
2nd year undergraduate	8	28.6	7	21.2	15	24.6
3rd year undergraduate	4	14.3	12	36.4	16	26.2
4th year undergraduate	5	17.9	10	30.3	15	24.6
5th year undergraduate	1	3.6	3	9.1	4	6.6
TOTAL	28		33		61	100.0
AGE						
18	9	33.3	2	6.1	11	18.3
19	8	29.6	3	9.1	11	18.3
20	4	14.9	8	24.2	12	20.0
21	5	18.5	8	24.2	13	21.7
22	1	3.7	5	15.1	6	10.0
23	0	0.0	3	9.1	3	5.0
24	0	0.0	3	9.1	3	5.0

Table continues

25	0	0.0	1	3.0	1	1.7
TOTAL	27		33		60	100.0
GPA						
3.5 or greater	6	21.4	8	24.2	14	23.0
3.0 to 3.5	13	46.4	13	39.3	26	42.6
2.5 to 3.0	8	29.6	4	12.1	12	19.7
2.0 to 2.5	1	3.7	7	21.2	8	13.1
2.0 or less	0	0.0	1	3.0	1	1.6
TOTAL	28		33		61	100.0
MOTHER'S EDUCATION						
High school or less	2	7.1	10	30.3	12	19.7
Some college	4	14.3	7	21.2	11	18.0
College degree	11	39.2	12	36.3	23	37.7
Some graduate school	0	0.0	2	6.1	2	3.3
Graduate degree	11	39.2	2	6.1	13	21.3
TOTAL	28		33		61	100.0
FATHERS'S EDUCATION						
High school or less	4	14.3	8	24.2	12	19.7
Some college	1	3.6	4	12.1	5	8.2
College degree	11	39.2	14	42.4	25	41.0
Some graduate school	0	0.0	1	3.0	1	1.6
Graduate degree	12	42.9	5	15.2	17	27.9
Unknown	0	0.0	1	3.0	1	1.6
TOTAL	28		33		61	100.0
RELATIONSHIP WITH COACH						
Under 1 year	17	60.7				
1 to 2 years	4	14.3				
2 to 3 years	4	14.3				
3 to 4 years	2	7.1				
Not Applicable	1	3.6				
TOTAL	28	100.0				
TYPE OF SPORT						
Contact	10	38.5				
Non-contact	16	61.5				
TOTAL	26	100.0				

Procedures

The researcher solicited permission to survey students from two instructors of undergraduate courses in the Counselor Education and Development department. On a date agreed upon by the instructors, the researcher attended the class to describe the research study and ask for participation from eligible non-athlete students. The researcher asked student-athlete members of one university's SAAC to sign up for available times for their team to meet with the researcher to participate in the study. A recruitment script was read that described the study, outlined the confidential nature of their collected data, and highlighted the voluntary nature of participation. The informed consent form, a list of local mental health resources, and the survey packet were handed out in manila envelopes to all participants. Once complete the survey packet, participants were instructed to place the completed survey packet in the manila envelope and place it in a box at the front of the room. Participants interested in signing up for a raffle for a twenty dollar Amazon gift card were permitted to write their name on a piece of paper at the front of the class that was separate from their completed survey packet.

Data Analyses

The analyses to be conducted in the full dissertation study were performed with the pilot data to preliminarily explore associations between the measured factors and the factor structure of the Coach-Athlete Attachment Scale. A correlation table was developed to address preliminary relationships as described in research question 1. The lack of male student-athlete participants in the pilot study did not allow for a preliminary analysis of research question 2; however, a comparison of the female participants by

athlete status was performed using a MANOVA. The CFA, path analysis, and Sobel Test for Mediation were not performed due to the small number of student-athlete participants in the pilot study.

Results

Means and standard deviations for all responses across factors were calculated and can be observed in Table 4.

Table 4

Descriptive Statistics for Variables Included in the Hypothesized Path Model

Instrument/Subscale	*M*	*SD*	*N*
BYAACQ	4.37	3.87	27
DERS	73.46	19.30	26
CAAS-Anxiety	11.93	6.94	28
CAAS-Avoidance	27.96	14.25	28
BPAQ-SF	20.72	9.23	25
DASS-21	12.00	8.29	27
AUDIT-C	2.25	1.96	24

Note. AUDIT-C = Alcohol Use Disorder Identification – Consumption; BPAQ-SF = Buss-Perry Aggression Questionnaire – Short Form; BYAACQ = Brief Young Adult Alcohol Consequence Questionnaire; CAAS-Anxiety = Coach-Athlete Attachment Scale – Anxiety; CAAS-Avoidance = Coach-Athlete Attachment Scale – Avoidance; DASS-21 = Depression, Anxiety, and Stress Scales; DERS = Difficulties in Emotion Regulation Scales

To examine preliminary relationships of the exogenous and endogenous variables of the path model, the researcher ran Pearson product moment correlations for all variables (Table 5). Significant relationships were found that support the hypothesized path model discussed in research question 4. Difficulties in emotion regulation positively correlated with coach-athlete attachment anxiety ($r = .449$, $p < .05$) and psychological

distress ($r = .530$, $p < .01$). In addition, alcohol use intensity and consequences of alcohol were positively correlated ($r = .652$, $p < .01$). However, the relationship between coach-athlete attachment avoidance and difficulties in emotion regulation was not significant ($r = .090$, $p < .66$). Further, difficulties in emotion regulation did not significantly correlate with alcohol use intensity ($r = .195$, $p < .37$) or aggression (r = .396, $p = .05$).

Table 5

Correlation Matrix of Exogenous and Endogenous Variables

	Anx	Avoid	AUDIT	BPAQ	BYCQ	DASS	DERS
Anx	1.00						
Avoid	.415*	1.00					
AUDIT	.465*	.244	1.00				
BPAQ	-.164	-.403*	.223	1.00			
BYCQ	.286	-.030	.652**	.480**	1.00		
DASS	.349	-.154	-.056	.303*	.076	1.00	
DERS	.449*	.090	.195	.396	.394*	.530**	1.00

Note. *p< .05 (2-tailed); **p<.01 (2-tailed); Anx = Coach-Athlete Attachment Scale-Anxiety; Avoid = Coach-Athlete Attachment Scale-Avoidance; AUDIT = Alcohol Use Disorder Identification – Consumption; BPAQ = Buss-Perry Aggression Questionnaire – Short Form; BYCQ = Brief Young Adult Alcohol Consequence Questionnaire; DASS = Depression, Anxiety, and Stress Scales; DERS = Difficulties in Emotion Regulation Scales

A MANOVA was run to preliminarily compare aggression, psychological distress, alcohol use intensity, and alcohol use consequences based on gender. It must be noted that the ideal number of female non-athletes and female athletes, 25, was not met

for either group. According to the results of the MANOVA (Table 6), the two groups do not differ on the linear combination of aggression, psychological distress, alcohol use intensity, and alcohol use consequences ($F_{4,33} = .771$, $p = .552$). Further, univariate follow-ups did not show evidence of significance at the individual dependent variable level. An appropriate sample size and the revision of the AUDIT-C may impact the analysis and lead to different results.

Table 6

Results of the Multivariate Analysis of Variance

Effect	Value	F	Significance	Partial Eta Squared
Pillai's Trace	.085	.771	.552	.085
Wilks' Lambda	.915	.771	.552	.085
Hotelling's Trace	.093	.771	.552	.085
Roy's Largest Root	.093	.771	.552	.085

Discussion

Male non-athletes (n = 7), female non-athletes (n = 26), and female student-athletes (n = 28) participated in the pilot study. Male student-athletes were not surveyed for the pilot but will be included in the full study. Although male student-athletes were unresponsive to scheduling times to participate in the study, the researcher's use of an electronic survey for the full study will make it more convenient for all participants to complete the survey packet.

The researcher completed the pilot study to test the dissertation study procedures, identify relationships between the measured variables, and run a preliminary multivariate analysis of variance to inform the full study. Attachment anxiety and avoidance

correlated significantly ($r = .415$; $p < .05$), similar to the correlation ($r = .41$) reported by Davis and Jowett (2013) in their initial tests of the CAAS. Although attachment anxiety and avoidance have been described as orthogonal constructs (Brennan et al., 1998), Davis and Jowett believe this may occur when the length of the relationship between coach and athlete is short, as was found in this pilot study. The positive correlation of the AUDIT-C and BYAACQ ($r = .652$, $p < .01$) was expected due to literature supporting increased alcohol related consequences due to increased alcohol use intensity, and supports the hypothesized path model (Figure 1).

The pilot study provided the researcher with insight on how the full study may be improved. Verbal and written feedback regarding the pilot study procedure and survey packet will be considered in the full study. The most significant procedural measure to be altered for the full study is the use of the electronic survey to collect the full student-athlete sample. Although several times were offered to the SAAC committee for scheduling their participation, verbal feedback was provided indicating significant difficulties with coordinating times to participate. The option to participate electronically may alleviate this barrier to student-athlete participation. All student-athlete participants completed the survey packet in less than 20 minutes, whereas all non-athlete students were finished in 15. The informed consent form will be changed to reflect the amount of time needed for student-athletes from 25 to 20 minutes.

Several student-athletes shared concern about their privacy, presumably due to how it may affect their athletic eligibility if their responses were somehow connected to their identity. This was evidenced by verbal feedback during survey participation. One

student-athlete commented in front of their team, “I am trusting you. This better not get back to anyone,” and several other student-athletes asked questions about how the data will be used who will see it, and where it will be kept. Two student-athletes did not share if they were contact or non-contact athletes, with one responding, “None of your business.” The majority of student-athletes opted out of the incentive raffle, presumably to attempt to keep their responses confidential. Additionally, one student-athlete participant filled out the majority of their survey packet, then marked out all of their previous responses and replaced them with “No” responses on the BYAACQ, zeroes on the AUDIT-C, and “Very Strongly Disagree” ratings on all of the coach-athlete attachment items. This participant’s survey was dropped from the pilot data analysis. These findings have led the researcher to utilize an electronic survey for student-athlete participants, which may provide an additional sense of confidentiality.

Revisions to the survey packet will be made due to feedback about some of the wording. One student-athlete reported uncertainty regarding the meaning of “principal sports coach” when completing the CAAS and demographic questionnaire. This language will be altered to read, “head coach” in both instances. Additionally, several student-athletes asked if the item on the DASS-21, “I was aware of dryness of the mouth,” included contexts in which the athlete was performing. The researcher will add, “…in absence of physical exertion,” to this item, similarly to how it is used in the item, “I experienced breathing difficulty (e.g. excessive rapid breathing).” Finally, several non-athlete and student-athlete participants shared confusion on the second item of the AUDIT-C in the demographic questionnaire. The item, “How many standard drinks (12

oz. regular beer, 5 oz. table wine, 1.5 oz. liquor) containing alcohol do you have in a typical day?" does not include a response option for "zero." The question's purpose is to assess the number of standard drinks consumed on a day that an individual consumes a drink; however, the researcher assumed that many of the participants responded as if "a typical day" included days of the week in which the participant did not drink alcohol. Participants wrote "Zero," "I don't drink on a typical day," and "Typical day, zero. Weekends, four," next to the item and checked the "1-2" response. Others did not respond to this item. The item will read, "How many standard drinks (12 oz. regular beer, 5 oz. table wine, 1.5 oz. liquor) containing alcohol do you have in a typical day that you drink alcohol?" in the survey packet for the full study. Finally, the researcher will add "Graduate school" as an option for student-athletes to check regarding their year in school and will add additional spacing between items to encourage an improved response rate.

Limitations

A number of limitations were uncovered once analyzing preliminary relationships between variables included in the path analysis via Pearson product moment correlations. The researcher did not hypothesize that coach-athlete attachment anxiety would significantly predict alcohol use intensity ($r = .465$, $p < .05$); however, the correlation does not take the presence of difficulties in emotion regulation into account as it will in the path analysis. Further, the researcher did not hypothesize paths between many of the endogenous variables of the path model that were significantly related in the pilot study. Aggression and alcohol use consequences ($r = .480$ $p < .01$), as well as aggression and

psychological distress ($r = .303$, $p < .05$) were positively correlated; however, if included in the path analysis, the model would be less parsimonious and would perhaps weaken the overall fit of the model.

Several relationships between difficulties in emotion regulation and other variables were not confirmed by the correlations run in the pilot study. Firstly, the relationship between difficulties in emotion regulation and aggression was not significant ($r = .396$, $p = .050$*)*; however, was significant at a p-value of .050. The DERS and alcohol use intensity were not significantly correlated ($r = .195$, $p < .37$) whereas the DERS and alcohol use consequences were significantly correlated ($r = .394$, $p < .05$) though there was a significant issue to be addressed with the second item of the AUDIT-C that will be revised for the full study. The researcher assumes that the relationship between the DERS and alcohol use intensity will be significant in the full study once the wording of the item is addressed. The researcher has hypothesized that alcohol use intensity will explain the relationship between difficulties in emotion regulation and consequences of alcohol use in the path model. Finally, it was hypothesized that the DERS would significantly and positively correlate with coach-athlete attachment avoidance ($r = .090$, $p < .656$). Furthermore, a significant negative relationship was found between coach-athlete attachment avoidance and aggression ($r = -.403$, $p < .05$). It is possible that these relationships are due to sample artifact. Anecdotally, several individuals indicated strong agreement with items of the coach-athlete attachment avoidance scale. A larger and more appropriate sample size may provide a clearer indication of the true relationship between these variables.

Summary

The pilot study was helpful in determining necessary changes to procedures and study instrumentation. Alterations will be made to the language used on one item of the DASS-21, one item of the AUDIT-C, one item regarding the coach-athlete relationship in the demographic questionnaire, and the description of the CAAS. The missing item of the DERS will be added back into the packet for the full study. Revisions to the informed consent, recruitment script, and survey packet will be made to reflect the reported number of minutes needed to complete the student-athlete survey packet.

CHAPTER IV

RESULTS

An introduction to the study focusing on its overall purpose was discussed in Chapter I. In Chapter II, the relevant literature relating to student-athlete mental health, attachment theory, and emotion regulation was thoroughly described. Chapter III introduced the methodology of the study. Specifically, research questions, hypotheses, instrumentation, data analyses, and a pilot study were described. The results of these tested hypotheses are explained in Chapter IV. First, the participant sample, descriptive statistics associated with the study instrumentation, and normality of the data are outlined. Next, the results related to each of the study hypotheses are discussed in detail. A summary of the findings is presented at the conclusion of the chapter.

Description of Participants

The participants in this study are a sample of convenience. The demographic breakdown of the participants for the full dissertation is located in Table 7. The researcher utilized a sample of 189 Division-I student-athletes from four universities. As identified in Table 7, the vast majority of participants in the full study were female (n = 138, 73.0%). Ages of participants ranged from 18 to 23 years old and the mean age of participants in the study was 19.72 (SD = 1.21). Most of the participants described their race/ethnicity as White (n = 135, 71.4%). First year undergraduate was the most commonly reported class year (n = 55, 29.1%) and the majority of participants indicated

that their GPA was 3.5 or greater (*n* = 78, 38.6%). The bulk of the full study participants indicated that their mothers' (*n* = 81, 42.9%) and fathers' (*n* = 80, 42.3%) had earned a college degree. Of the student-athlete participants, 98 participants (51.9%) reported being in season with their sport at the time of assessment. Most participants compete in non-contact sports (*n* = 124, 65.6%) and the majority of student-athletes reported that the length of their relationship with their principal sports coach was less than 1 year (*n* = 67, 35.4%).

Table 7

Descriptive Statistics for Participants

Demographic Characteristic	*n*	%
SEX		
Male	49	25.9
Female	138	73.0
MISSING	2	1.1
TOTAL	189	100.0
ETHNICITY		
White (Non-Hispanic)	135	71.4
Black/African-American/Caribbean	29	15.3
Hispanic or Latino/a	8	4.2
American Indian, Alaskan, or Native Hawaiian	0	0.0
Asian or Pacific Islander	3	1.6
Biracial or Multiracial	7	3.7
Other	5	2.6
MISSING	2	1.1
TOTAL	189	100.0
CLASS YEAR		
1st year undergraduate	55	29.1
2nd year undergraduate	43	22.8
3rd year undergraduate	51	27.0

Table continues

Demographic Characteristic	*n*	%
CLASS YEAR		
4th year undergraduate	35	18.5
5th year undergraduate	2	1.1
Graduate Student	1	0.5
MISSING	2	1.1
TOTAL	189	100.0
AGE		
18	39	20.9
19	40	21.4
20	56	29.9
21	40	21.4
22	11	5.9
23	1	0.5
24	0	0.0
25	0	0.0
MISSING	2	1.1
TOTAL	189	100.0
GPA		
3.5 or greater	73	38.6
3.0 to 3.5	69	36.5
2.5 to 3.0	33	17.5
2.0 to 2.5	7	3.7
2.0 or less	2	1.1
Unknown	3	1.6
MISSING	2	1.1
TOTAL	189	100.0
MOTHER'S EDUCATION		
High school or less	16	8.5
Some college	33	17.5
College degree	81	42.9
Some graduate school	6	3.2
Graduate degree	47	24.9
Unknown	4	2.1
MISSING	2	1.1
TOTAL	189	100.0
FATHERS'S EDUCATION		
High school or less	33	17.5

Table continues

Demographic Characteristic	*n*	%
FATHERS'S EDUCATION		
Some college	25	13.2
College degree	80	42.3
Some graduate school	3	1.6
Graduate degree	41	21.7
Unknown	5	2.6
MISSING	2	1.1
TOTAL	189	100.0
SPORT SEASON STATUS		
In season (currently competing)	98	51.9
Out of season (not currently competing)	89	47.1
MISSING	2	1.1
TOTAL	189	100.0
RELATIONSHIP WITH COACH		
Under 1 year	67	35.4
1 to 2 years	43	22.8
2 to 3 years	36	19.0
3 to 4 years	28	14.8
More than 4 years	10	5.3
Unknown	3	1.6
MISSING	2	1.1
TOTAL	189	100.0
TYPE OF SPORT		
Contact	62	32.8
Non-contact	124	65.6
MISSING	3	1.6
TOTAL	189	100.0

Representativeness of the Sample

The ratio of male students (25.9%) to female students (73.0%) in the sample was most similar to that of University C, as reported in Table 8. Additionally, the race/ethnicity of the sample (71.4% White, 15.3% Black, 12.1% Other) was comparable

to the distribution of race/ethnicity at the participating universities. Further, the NCAA (2015) reports that females made up 46.4% of the Division I student-athlete population; however, the sample for the full study was skewed toward having more female student-athletes. The race/ethnicity of the full study sample was somewhat representative of NCAA Division-I student-athletes, as 61.3% of student-athletes identify as White and 38.7% as Black or another race/ethnicity.

Table 8

Demographic Data for Sampled Universities and the NCAA

University	A	B	C	D	NCAA D-I (2014)
SEX					
Male	40.8%	45.2%	34.6%	46.2%	53.6%
Female	59.2%	54.8%	65.4%	53.8%	46.4%
RACE/ETHNICITY					
White	83.1%	59.1%	58.5%	69.5%	61.3%
Black	6.4%	7.5%	25.9%	5.0%	20.3%
Other	10.5%	33.4%	16.6%	25.5%	18.4%

Descriptive Statistics of the Instruments Used in the Study

The instrumentation utilized in the full study included the two subscales of the Coach-Athlete Attachment Scale (CAAS; Davis & Jowett, 2013), Anxiety and Avoidance; the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004); the Buss-Perry Aggression Questionnaire Short Form (BPAQ-SF; Bryant & Smith, 2001); the Brief Young Adult Alcohol Consequences Questionnaire (BYAACQ; Kahler, Strong, & Read, 2005); the 21- Item Depression, Anxiety, and Stress Scales (DASS-21; Lovibond & Lovibond, 1995); the two subscales of the Experiences in Close

Relationships-Short (ECR-S; Wei et al., 2007), Anxiety and Avoidance; the Balanced Inventory of Desirable Responding-Revised (BIDR; Paulhus, 1991; Steenkemp, De Jong, & Baumgartner, 2010); and the Alcohol Use Disorder Identification Test for Consumption (AUDIT-C; Bush, Kivlahan, & McDonell, 1998). Division I student-athletes completed three surveys that were not administered to non-athlete participants. The two subscales of the CAAS, Anxiety and Avoidance, assessed coach-athlete attachment and the two subscales of the ECR-S, Anxiety and Avoidance, acted as a more global measure of attachment among student-athlete participants. In addition, the DERS was used to identify student-athlete difficulties in emotion regulation. Student-athletes also completed five additional measures that made up the non-athlete survey packet in its entirety. The BYAACQ was used to identify the number of alcohol-use related consequences experienced by an individual, whereas the AUDIT-C measured alcohol use intensity. A total score on the DASS-21 was calculated as a measure of psychological distress and a total score from the BPAQ-SF was computed to analyze aggression. Finally, the BIDR was used to identify other variables that were influenced by a pattern of socially desirable responding.

A revised form of the Anxiety scale of the ECR-S was used after deleting an item that negatively influenced the scale's reliability, as seen in Table 11. Additionally, a revised form of the CAAS-Anxiety subscale was used after determining that item 3, "*I worry a fair amount about my coach leaving me to coach elsewhere (V10),"* only loaded onto the latent factor at .32, less than the amount representative of an adequate loading

(.6; Matsunaga, 2010). The item was removed for the purposes of the study. Mean scores, possible ranges, and observed ranges for these instruments can be found in Table 9.

Table 9

Descriptive Statistics for Participant Responses on Study Instrumentation

Instrument/Subscale	*M (SD)*	Possible Range	Observed Range
AUDIT-C	3.38 (2.73)	0 - 12	0 - 11
BIDR	3.16 (.404)	20 - 100	36 - 84
BPAQ-SF	23.02 (9.32)	12 - 60	12 - 47
BYAACQ	4.67 (5.30)	0 - 24	0 - 24
CAAS - Anxiety	15.34 (9.71)	6 - 42	6 – 42
CAAS - Avoidance	29.02 (11.01)	7 - 49	7 – 49
DASS-21	11.15 (11.30)	0 - 63	0 – 48
DERS	74.77 (21.12)	36 - 180	36 – 131
ECR-S - Anxiety	20.69 (6.36)	6 – 42	6 – 38
ECR-S – Anxiety Revised*	16.89 (6.13)	5 - 35	5 - 32
ECR-S - Avoidance	18.14 (6.83)	6 – 42	6 – 40

Note. AUDIT-C = Alcohol Use Disorder Identification – Consumption; BIDR = Balanced Inventory of Desirable Responding; BPAQ-SF = Buss-Perry Aggression Questionnaire – Short Form; BYAACQ = Brief Young Adult Alcohol Consequence Questionnaire; CAAS = Coach-Athlete Attachment Scales; DASS-21 = Depression, Anxiety, and Stress Scales; DERS = Difficulties in Emotion Regulation Scales; ECR-S = Experiences in Close Relationships-Short Form; ECR-S – Anxiety Revised scale added due to item deletion to improve reliability

Reliability Statistics of the Instruments Used in the Study

Cronbach's alpha, a measure of internal consistency, was calculated for the eight instruments and subscales used for the analyses in this study. This information is presented below in Table 10. The AUDIT-C, BPAQ-SF, BYAACQ, subscales of the CAAS, DASS-21, and DERS demonstrated high internal consistency, with a Cronbach's alpha ranging from .865 to .963. Reliability coefficients for the BIDR and subscales of

the ECR-S were acceptable; however, the internal consistencies of the 3 measures were found to be questionable at best. Although the CAAS has yet to be used in a large quantity of studies, reliability estimates for the scale and its items were excellent, as seen in Table 10.

Table 10

Reliability Coefficients for Instruments Used in the Study

Instrument/Subscale	Number of Items	Alpha Coefficient
AUDIT-C	3	.864
BIDR	20	.734
BPAQ-SF	12	.900
BYAACQ	24	.923
CAAS - Anxiety	6	.927
CAAS - Avoidance	7	.928
DASS-21	21	.962
DERS	36	.940
ECR-S - Anxiety	6	.701
ECR-S - Avoidance	6	.787

Note. AUDIT-C = Alcohol Use Disorder Identification – Consumption; BIDR = Balanced Inventory of Desirable Responding; BPAQ-SF = Buss-Perry Aggression Questionnaire – Short Form; BYAACQ = Brief Young Adult Alcohol Consequence Questionnaire; CAAS = Coach-Athlete Attachment Scales; DASS-21 = Depression, Anxiety, and Stress Scales; DERS = Difficulties in Emotion Regulation Scales; ECR-S = Experiences in Close Relationships-Short Form

Reliability analyses were run on the items of each scale with a Cronbach's alpha under .80 to determine if item deletion would improve the reliability of the measure. Although none of the items of the Avoidance scale of the ECR-S could be removed to increase the reliability of the scale, exclusion of the item, "*I do not often worry about being abandoned*," of the Anxiety scale resulted in a reliability increase from .701 to

.802. According to Kelloway (1998), a path analysis should not be run unless the internal consistencies of the utilized measures are greater than .70; therefore, the researcher decided to remove the item to improve reliability for the path analysis performed to answer research question 3. Further, removing the item did not appreciably influence the construct, as the other items of the measure still depict the theoretical underpinnings of anxious attachment. Exclusion of the item, *"Once I've made up my mind, other people can seldom change my opinion,"* would increase the reliability of the BIDR to .748; however, removing the item would not increase the internal consistency of the scale to a degree necessary to justify its removal.

Table 11

Descriptive Statistics and Reliability Estimates for Original and Revised ECR-S

Instrument/Subscale	*M* (*SD*)	Possible Range	Observed Range	Alpha Coefficient
ECR-S - Anxiety	20.69 (6.36)	6 – 42	6 - 38	.701
ECR-S – Anxiety Revised	16.89 (6.13)	5 – 35	5 - 32	.802

**Note*. One item was deleted in the revised version of the ECR-S to bring the total to six items.

Assessing Normality of the Variables in the Research Sample

Normality of the data was assessed to meet the assumptions of the Path Analysis and CFA used to answer research questions 3 and 4. According to Kline (2011), skewness greater than an absolute value of 3.0 and kurtosis with an absolute value greater than 10 are considered "extreme" and thus, non-normally distributed. An acceptable

range of skewness and kurtosis was observed for all exogenous and endogenous variables to be run in the path analysis and CFA, as displayed in Table 12.

Table 12

Skewness and Kurtosis Statistics for Instruments and Subscales

Instruments and Subscales	*n*	Skewness	Kurtosis
AUDIT-C	189	.534	-.320
BIDR	178	.080	.341
BPAQ-SF	189	.674	-.475
BYAACQ	189	1.472	2.110
CAAS – Anxiety	189	.897	-.238
CAAS - Avoidance	189	-.038	-.696
DASS-21	189	1.023	.292
DERS	189	.612	-.205
ECR-S – Anxiety*	189	-.105	-.412
ECR-S - Avoidance	189	.259	.013

*Note. *After item deletion;* AUDIT-C = Alcohol Use Disorder Identification – Consumption; BIDR = Balanced Inventory of Desirable Responding; BPAQ-SF = Buss-Perry Aggression Questionnaire – Short Form; BYAACQ = Brief Young Adult Alcohol Consequence Questionnaire; CAAS = Coach-Athlete Attachment Scales; DASS-21 = Depression, Anxiety, and Stress Scales; DERS = Difficulties in Emotion Regulation Scales; ECR-S = Experiences in Close Relationships-Short Form

Assessing the Influence of Socially Desirable Responding

Per the recommendations of Steenkamp, De Jong, and Baumgartner (2010), correlations between the BIDR and study variables were observed to identify socially desirable responding patterns on each variable (See Table 13). Of the study variables, Coach-Athlete Attachment Avoidance was the only construct to not significantly relate to the BIDR (r = -.057). The negative correlations associated with aggression, alcohol use intensity, alcohol use consequences, coach-athlete attachment anxiety, difficulties in

emotion regulation, and psychological distress are an indication that higher levels of socially desirable responding are related to lower levels of these constructs. This initial analysis serves as caution that socially desirable responding may have confounded the data in this study.

Table 13

Correlation Matrix of Study Variables with the Balanced Inventory of Desirable Responding

Instrumentation/Subscale	BIDR
AUDIT	-.224*
BPAQ	-.432**
BYCQ	-.390**
CANX	-.235**
CAVO	-.057
DASS	-.391**
DERS	-.526**

Note. *p< .05 (2-tailed); **p<.01 (2-tailed); AUDIT = Alcohol Use Disorder Identification – Consumption; BIDR = Balanced Inventory of Desirable Responding; SQ_BPAQ = Buss-Perry Aggression Questionnaire – Short Form (square root); SQ_BYCQ = Brief Young Adult Alcohol Consequence Questionnaire (square root); CANX = Coach-Athlete Attachment Scale-Anxiety; CAVO = Coach-Athlete Attachment Scale-Avoidance; DASS = Depression, Anxiety, and Stress Scales; DERS = Difficulties in Emotion Regulation Scales

As a follow up to the correlations described in Table 13, a multivariate linear regression including all of the variables of the model (aggression, alcohol use intensity and consequences, coach-athlete attachment anxiety and avoidance, emotion regulation, and psychological distress) were regressed onto the measure of socially desirable responding as per Steenkamp et al.'s recommendation. Analysis of the regression resulted in a significant F-statistic, Wilks Lambda, $F(7, 170) = 15.319$, p = .000. Therefore, one

can assume that there was a significant pattern of socially desirable responding across the dependent variables when run as part of the same analysis.

A closer look at the univariate *F*-test follow-ups to the multivariate procedure indicates that several of the dependent variables in the study were significantly affected by participants' patterns of socially desirable responding. Large effect sizes (partial eta squared) accompanied several of the significant patterns of socially desirable responding (see Table 14). Socially desirable responding accounted for (from low to high) 39.0% of the variance in alcohol use consequences, 39.1% of psychological distress, 43.2% of the variance in aggression, and 52.6% of difficulties in emotion regulation. The high observed power across the dependent variables indicates that the results can be interpreted with smaller effect sizes; however, power was very low for Coach-Athlete Attachment Avoidance (.117), which may explain one reason that there was no significant relationship found. Regardless, the correlation between socially desirable responding and Coach-Athlete Attachment Avoidance was not significant; therefore, the researcher will assume that socially desirable responding did not influence this dependent variable. The results for aggression, alcohol use intensity and consequences, coach-athlete anxiety, difficulties in emotion regulation, and psychological distress, should be interpreted with caution. According to the results of this analysis, student-athletes who scored higher on a measure of socially desirable responding reported lower scores on the majority of the measured variables in the study.

Table 14

Univariate F-test Follow-ups and Beta Weights for the Multivariate Regression

	Dependent Variable	β	F	Partial Eta Squared	Significance	Observed Power
BIDR	AUDIT-C	-1.534	9.295	.050	.003	.858
	BPAQ-SF	-1.039	40.452	.187	.000	1.000
	BYAACQ	-1.411	31.583	.152	.000	1.000
	CAAS – Anxiety*	-5.686	10.264	.055	.002	.890
	CAAS – Avoidance	-1.561	.572	.003	.486	.117
	DASS-21	-2.118	31.755	.153	.000	1.000
	DERS	-27.890	67.341	.277	.000	1.000

*Note: *After item deletion;* AUDIT-C = Alcohol Use Disorder Identification – Consumption; BPAQ-SF = Buss-Perry Aggression Questionnaire – Short Form; BYAACQ = Brief Young Adult Alcohol Consequence Questionnaire; CAAS = Coach-Athlete Attachment Scale; DASS-21 = Depression, Anxiety, and Stress Scales; DERS = Difficulties in Emotion Regulation Scale

Results of Hypothesis Testing

Hypothesis One: Correlations

The initial hypothesis of significant relationships between study variables was performed to preliminarily identify associations in support of the proposed model in research question 4. Analysis of the Pearson product moment correlations run in this study, as displayed in Table 12, resulted in significant associations between exogenous and endogenous variables of the model as depicted in Table 17. Several of the relationships proposed in the hypothesized model were significant, including the associations between the primary mediating variable of the model, difficulties in emotion regulation, and the exogenous variables of the model, coach-athlete attachment anxiety ($r = .398$, $p < .01$) and avoidance ($r = .146$, $p < .05$) as well as psychological distress ($r = .387$, $p < .01$) and aggression ($r = .478$, $p < .01$). The strongest relationship between study

variables was found between alcohol use intensity and alcohol use consequences (r = .643, p < .01), which supported a direct path in the model. The only non-significant association that was not represented by the hypothesized model was the relationship between difficulties in emotion regulation and alcohol use intensity (r = .095). Predictably, the global measures of attachment avoidance (r = .346, p < .05) and attachment anxiety (r = .431, p < .05) of the ECR-S were significantly related to emotion regulation; however, attachment avoidance did not significantly correlate with coach-athlete attachment avoidance (r = -.072) and anxiety (r = .130). All relationships were found to be in the expected directions other than the non-significant relationships of aggression with coach-athlete attachment avoidance and adult attachment avoidance with coach-athlete attachment avoidance.

Table 15

Correlation Matrix of Study Variables

	AUDIT	BPAQ	BYCQ	CANX	CAVO	DASS	DERS	EANX	EAVO
AUDIT	1.00								
BPAQ	.201**	1.00							
BYCQ	.578**	.235**	1.00						
CANX	.036	.251**	.152*	1.00					
CAVO	.182*	.116	-.004	.478**	1.00				
DASS	.244**	.344**	.311**	.353**	.161*	1.00			

Table continues

	AUDIT	BPAQ	BYCQ	CANX	CAVO	DASS	DERS	EANX	EAVO
DERS	.095	.482**	.277**	.398**	.146*	.373**	1.00		
EANX	.239**	.390**	.250**	.225**	.146*	.262**	.431**	1.00	
EAVO	.056	.148*	.146*	.130	-.072	.157*	.346**	.199**	1.00

Note. *p< .05 (2-tailed); **p<.01 (2-tailed); AUDIT = Alcohol Use Disorder Identification – Consumption; BPAQ = Buss-Perry Aggression Questionnaire – Short Form; BYCQ* = Brief Young Adult Alcohol Consequence Questionnaire; CANX = Coach-Athlete Attachment Scale-Anxiety; CAVO = Coach-Athlete Attachment Scale-Avoidance; DASS = Depression, Anxiety, and Stress Scales; DERS = Difficulties in Emotion Regulation Scales; EANX = Experiences in Close Relationships – Anxiety; EAVO = Experiences in Close Relationships – Avoidance.

Hypothesis Two: Confirmatory Factor Analysis of the Coach-Athlete Attachment Scale

The researcher's second hypothesis, that the two-factor model of the Coach-Athlete Attachment Scale (Davis & Jowett, 2013) would provide an accurate fit for the observed data, was tested to confirm the reliability and factor structure of the CAAS. An item-level reliability analysis (Table 18) was performed to assess for non-normality of the data and to observe correlations between items on the factors confirmed by Davis and Jowett (2013). According to Kline (2011), items with an item-total correlation less than .3 should be deleted from the instrument and items corresponding to item-total correlations greater than .8 may be repetitious. Although the third item of the Anxiety subscale had an item-total correlation of .345, it was removed from the instrument. This low correlation paired with a poor factor loading justified the deletion of the item. Items 4 (r = .841) and 5 (r = .845) of the Avoidance subscale, "*I do not rely on my coach when I have a problem to solve*," and "*I do not turn to my coach when I need to get something off my chest*," may

be repetitive items that do not need to be responded to separately. Items 1, 2, 6, and 7 of the Anxiety scale, "*I often wonder if my coach cares about me as an athlete* (*r* = .806)," "*I often worry that my coach does not value me as much as I value him/her* (*r* = .869)," "*Sometimes I worry that my coach is not as committed to me as I am to them* (*r* =.841)," and "*I worry that my coach does not respect me as much as I respect him/her* (*r* = .847)," may also represent items that are too closely similar to be measuring separate nuances of the same factor. Although the item-total correlations for these items were high, they were not removed from the study. These items were deemed important to the validity of the theoretical construct and must be considered a limitation to the study.

Table 16

13-Item CAAS Preliminary Item-Level Analysis

Item Label	*M*	*SD*	Skew	Kurtosis	Item-Total Correlation
Avoid1	4.21	1.721	-.014	-.832	.643
Avoid2	4.02	1.841	.049	-1.047	.756
Avoid3	4.41	1.847	-.169	-1.010	.764
Avoid4	4.29	1.889	-.102	-1.036	.841
Avoid5	4.62	1.917	-.347	-1.072	.845
Avoid6	3.61	2.001	.261	-1.126	.750
Avoid7	3.87	1.950	.115	-1.181	.798
Anx1	2.89	2.070	.728	-.810	.806
Anx2	2.57	1.825	.935	-.180	.869
Anx3*	2.00	1.462	1.486	1.643	.345
Anx4	2.68	1.827	.858	-.316	.633
Anx5	2.37	1.827	1.144	.139	.748
Anx6	2.42	1.871	1.141	.125	.841
Anx7	2.41	1.907	1.188	.162	.847

Note. Item "Anx3" removed from the CFA and Path analysis.

The researcher utilized LISREL Version 8.8 0 Student Edition to run the models associated with the full dissertation study. A covariance matrix of the items of the CAAS was developed using the correlations and standard deviations of each item. The CFA of the Coach-Athlete Attachment Scale, per the 10:1 sample to parameter rule, would have required 270 participants. Therefore, the sample of student-athletes collected for the dissertation study ($N = 189$) was not large enough to meaningfully test the two-factor model of the CAAS developed by Davis and Jowett (2013). Due to these circumstances, the researcher ran the original two-factor model described by the researchers and two independent one-factor CFA's to test the factor structure of the anxiety and avoidance factors of the CAAS. The hierarchical models were tested to determine the best fit for the data. Per Kline (2011), the use of a Chi-square difference test between two hierarchical models is important to determine the best model fit for the data. Following an initial analysis of the model produced by the CFA, the third item of the anxiety subscale loaded at $\beta = .32$, lower than the recommended conservative cutoff for item loadings on a latent factor ($\beta = .6$; Matsunaga, 2010). As such, this item was removed from the scale.

Model 1a: Two-Factor Coach-Athlete Attachment Scale (Davis & Jowett, 2013). As described earlier, the following results for the two-factor model must be interpreted with caution due to the small sample ($N = 189$). With item 3 of the anxiety subscale removed from the two-factor model, all indicators in the Confirmatory Factor Analysis were statistically significant ($p < .001$). Further, the seven items related to Coach-Athlete Attachment Avoidance ($\beta = .65; .77; .79; .88; .89; .81; .84$) and six items related to the the Coach-Athlete Attachment Anxiety factor ($\beta = .86; .92; .63; .75; .88;$

.90) were positively associated with their respective latent factors as evidenced by the standardized loadings (Figure 4). Standardized items loadings appeared to be adequate (β > .50) for all items in the revised two-factor model of the CAAS, indicating convergent validity (see Table 17).

Table 17

Factor Loadings and Standard Error Estimates for Model 1a

	Unst.	*SE*	*St.*
CA Attachment Avoidance			
Avoidance1	1.000*	--	0.65
Avoidance2	1.256	0.135	0.77
Avoidance3	1.296	0.136	0.79
Avoidance4	1.481	0.143	0.89
Avoidance5	1.520	0.145	0.81
Avoidance6	1.437	0.148	0.84
Avoidance7	1.451	0.145	0.83
CA Attachment Anxiety			
Anxiety1	1.000*	--	0.86
Anxiety2	0.942	0.053	0.92
Anxiety4	0.649	0.066	0.63
Anxiety5	0.769	0.062	0.75
Anxiety6	0.931	0.056	0.88
Anxiety7	0.966	0.056	0.90

Note. Unst. = Unstandardized Factor Loadings; St. = Standardized Factor Loadings

The correlation between the two latent factors of the model was $r = .51$ (Figure 4), an indication of discriminant validity ($r < .80$). Further, the correlation was distinguishable from zero as evidenced by the covariance of the two latent factors (1.016, std. error = .196) described in Table 18. Standardized items loadings appeared to be

adequate ($\beta > .50$) for all items in the revised two-factor model of the CAAS, indicating convergent validity.

Table 18

Phi Covariance Matrix of Factors for Model 1a

	Anxiety	Avoidance
Anxiety	1.263	
	(0.255)	
	4.950	
Avoidance	1.016	3.158
	(0.196)	(0.431)
	5.192	7.333

Evaluation of the global fit statistics revealed that the two-factor model of the CAAS provided a marginal fit for the data (Table 21). The comparative fit index (CFI), .960, was above the threshold of reasonable fit (CFI ≥ .90). The standardized root mean square residual (SRMR) was .0613, meeting the desired criteria for good model fit (SRMR ≤ .10; Kline, 2011). The root mean square error of approximation (RMSEA) and chi-square indices resulted in contradictory results. The RMSEA was .114, indicating a poor model fit due to it being greater than the desired RMSEA ≤ .05 (Kline, 2011). Additionally, $\chi 2 = 222.49$ (*df = 64, p = .001*) was statistically significant indicating a rejection of model fit. Upon reviewing the fit indices, the researcher concluded that the model marginally fits the observed data.

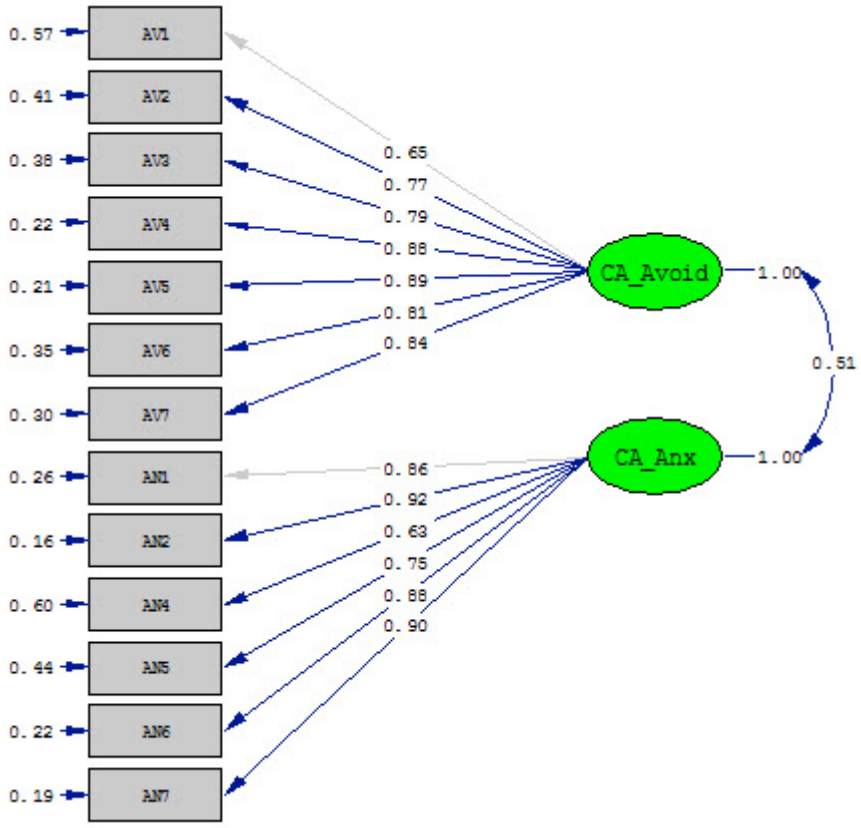


Figure 4. Model 1a: Standardized Solution of the Two-Factor Model of the CAAS (*N* = 189; Davis & Jowett, 2013)

Model 2a and 2b: One-Factor Models of Coach-Athlete Attachment Anxiety and Avoidance. The Anxiety and Avoidance scales of the CAAS were ran as single-factor models using CFA due to the small sample size (*N* = 189) and because the two-factor model only provided marginal fit for the data. This was appropriate due to the parameter to sample ratio of 10:1 discussed as appropriate for analyzing structural models (Kline, 2011). The Avoidance scale included 14 estimated parameters, whereas the Anxiety scale with item 3 removed included 12 estimated parameters. All indicators of

both the Anxiety (β = .84; .91; .63; .75; .90; .94) and Avoidance (β = .66; .76; .79; .89; .90; .80; .83) subscales were statistically significant ($p < .001$; see tables 19a and 19b). A cutoff of .60 for factor loadings was utilized and is considered to be conservative and rigorous, ensuring convergent validity of the measure (Matsunaga, 2010).

Table 19a

Factor Loadings and Standard Error Estimates for Model 2a

	Unst.	*SE*	*St.*
CA Attachment Anxiety			
Anxiety1	1.000*	--	0.84
Anxiety2	0.950*	0.056	0.91
Anxiety4	0.660*	0.068	0.63
Anxiety5	0.787*	0.064	0.75
Anxiety6	0.968*	0.058	0.90
Anxiety7	0.987*	0.055	0.94

Note: N = 189

Table 19b

Factor Loadings and Standard Error Estimates for Model 2b

	Unst.	*SE*	*St.*
CA Attachment Avoidance			
Avoidance1	1.000*	--	0.66
Avoidance2	1.248*	0.134	0.76
Avoidance3	1.296*	0.135	0.79
Avoidance4	1.488*	0.142	0.89
Avoidance5	1.521*	0.144	0.90
Avoidance6	1.416*	0.147	0.80
Avoidance7	1.429*	0.144	0.83

Note: N = 189; * $p < .001$

Evaluation of the global fit statistics revealed that the one-factor model of Coach-Athlete Attachment Anxiety (2a) provided a marginal fit for the data (Table 20). The

comparative fit index (CFI), .963, was above the threshold of reasonable fit (CFI ≥ .90). The standardized root mean square residual (SRMR) was .0548, meeting the desired criteria for good model fit (SRMR ≤ .10; Kline, 2011). The root mean square error of approximation (RMSEA) and chi-square indices resulted in contradictory results. The RMSEA was .172, indicating a poor model fit due to it being greater than the desired RMSEA ≤ .05 (Kline, 2011). Additionally, $\chi 2 = 59.45$ (*df = 9, p = .001*) was statistically significant indicating a rejection of model fit for model 2a. To test the statistical significance of the hierarchical model and determine which model is a better fit for the data, the Chi-square difference statistic was utilized. The Chi-square difference statistic was significant ($\chi^2_D = 163.04$; *df = 55; p < .001*), indicating that this one-factor model was preferred to the two-factor model.

Table 20

Fit Indices for Models 1a (Two-Factor Model) and 2a (One-Factor Anxiety Scale)

Model	SRMR	RMSEA	CFI	χ^2	df	χ^2_D	df_D	*p*
1a	0.0613	0.114	0.960	222.49	64			
2a	0.0548	0.172	0.963	59.45	9	163.04	55	.0001

Note. N = X; $\chi 2$ = chi square estimate; *df* = degrees of freedom; SRMR = Standardized Root Mean Square residual; RMSEA = Root Mean Square Error of Approximation; CFI = Comparative Fit Index

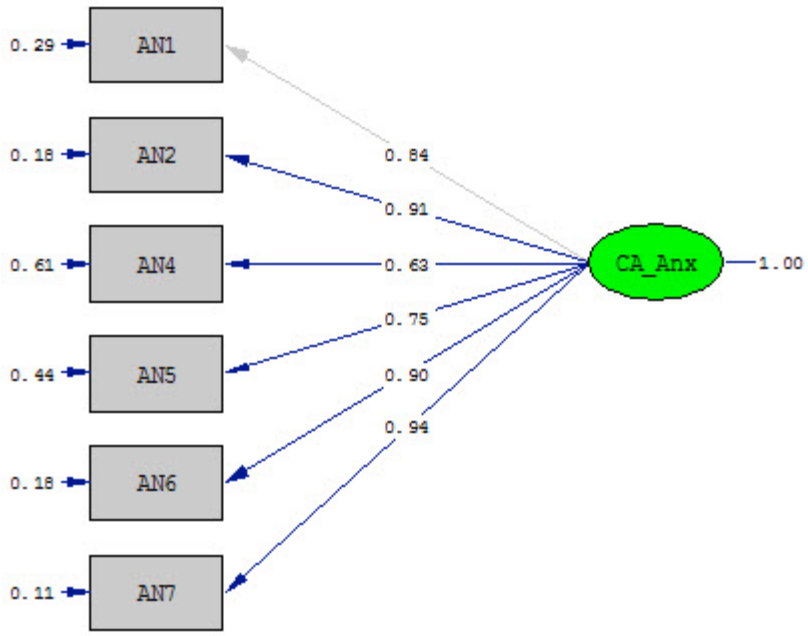


Figure 5. Model 2a: Standardized Solution of the One-Factor Model for the CAAS-Anxiety Scale ($N = 189$)

Evaluation of the global fit statistics revealed that the one-factor model of Coach-Athlete Attachment Avoidance (Model 2b) provided a marginal fit for the data (Table 21). The comparative fit index (CFI), .944, was above the threshold of reasonable fit (CFI ≥ .90). The standardized root mean square residual (SRMR) was .0402, meeting the desired criteria for good model fit (SRMR ≤ .10; Kline, 2011). The root mean square error of approximation (RMSEA) and chi-square indices resulted in contradictory results. The RMSEA was .187, indicating a poor model fit due to it being greater than the desired RMSEA ≤ .05 (Kline, 2011). Additionally, $\chi 2 = 106.49$ (*df = 14, p = .001*) was statistically significant indicating a rejection of model fit. The Chi-square difference

statistic was significant ($\chi^2_D = 116.00$; $df = 50$; $p < .001$), indicating that the one-factor model was preferred to the two-factor model.

Table 21

Fit Indices for Models 1a (Two-Factor Model) and 2b (One-Factor Avoidance Scale)

Model	SRMR	RMSEA	CFI	χ^2	df	χ^2_D	df_D	*p*
1a	0.0613	0.114	0.960	222.49	64			
2b	0.0402	0.187	0.944	106.49	14	116.00	50	.0001

Note. N = X; χ2 = chi square estimate; *df* = degrees of freedom; SRMR = Standardized Root Mean Square residual; RMSEA = Root Mean Square Error of Approximation; CFI = Comparative Fit Index

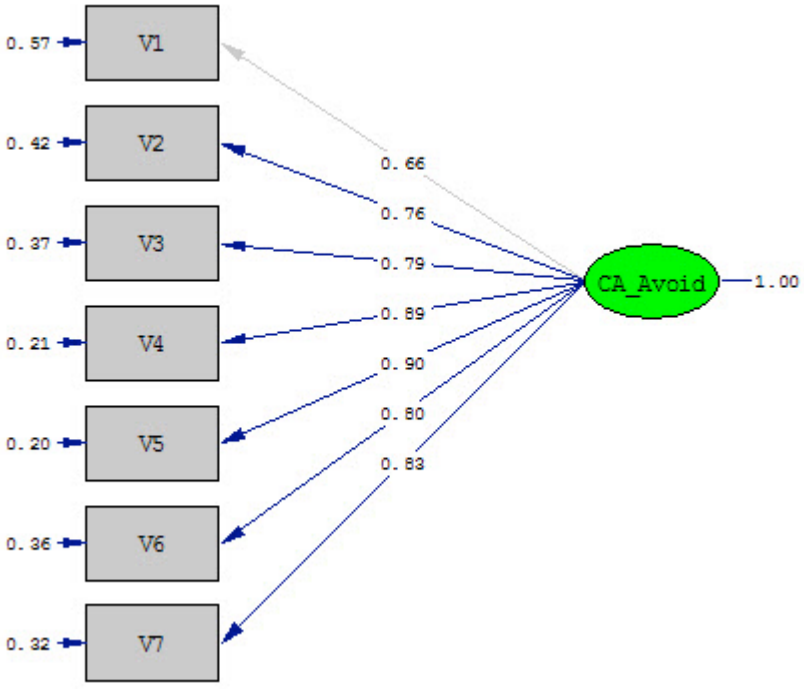


Figure 6. Model 2b: Standardized Solution of the One-Factor Model for the CAAS-Avoidance Subscale (*N* = 189)

The squared multiple correlations, or R^2, for each observed variable can be interpreted as the proportion of variance in the observed variable that is accounted for by the latent variable for which it is an indicator. The indicators of Coach-Athlete Attachment Anxiety and Avoidance scales display R^2 values that are evidence of moderate to high reliability (Table 22a and 22b). Therefore, one can assume that the variance of the items on the Anxiety and Avoidance scales can be explained by their respective latent factors and are reliable indicators of that factor.

Table 22a

Descriptive Reliability Estimates for Model 2a (Anxiety)

	Anxiety1	Anxiety2	Anxiety4	Anxiety5	Anxiety6	Anxiety7
R^2	.709	.824	.394	.559	.814	.886

Table 22b

Descriptive Reliability Estimates for Model 2b (Avoidance)

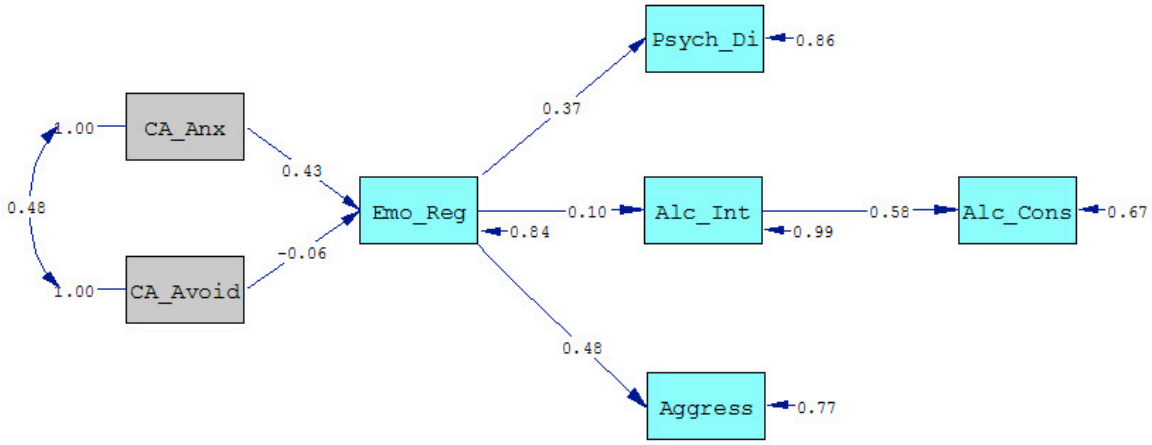
	Avoidance1	Avoidance2	Avoidance3	Avoidance4
R^2	.430	.585	.627	.790
	Avoidance5	Avoidance6	Avoidance7	
R^2	.801	.637	.683	

The sample size of the study was not adequate to test the factor structure of the two-factor Coach-Athlete Attachment Scale, as originally proposed by Davis and Jowett (2013). Rather, the Anxiety and Avoidance scales were tested separately to fulfill the 10:1 sample-to-parameter ratio necessary for the analysis. The determination that the one-factor models provided a significantly better, but still marginal fit for the data has little

bearing on the overall analysis. Rather, the shortcut of analyzing each one-factor model individually was performed to give a clearer picture of how each scale is performing. Regardless, the results should be interpreted with caution due to the finding that both one-factor models provided only a marginally good fit for the data.

Hypothesis Three: Path Analysis

Similarly to the CFA in research question 2, a covariance matrix was developed from the variable correlations and standard deviations to run the hypothesized model in the LISREL Version 8.80 Student Edition program. The specified model and its standardized solution are presented in Figure 7.



Note: $N = 189$; * $p < .001$

Figure 7. Model 3a: Standardized Solution of the Hypothesized Model (N = 189)

Evaluation of the global fit statistics revealed that model 3a was a poor fit for the data (Table 23). Specifically, the comparative fit index (.830) was below the threshold of reasonable fit (CFI ≥ .90) and the SRMR was .116, meeting the desired criteria for good

model fit (SRMR ≤ .10; Kline, 2011). Further, the Chi-square fit statistic, $\chi 2 = 69.87$ ($df = 14$, $p < .001$) was statistically significant indicating a rejection of model fit. The RMSEA was .145, indicating a poor model fit due to it being greater than the desired RMSEA ≤ .05 (Kline, 2011). Upon reviewing the fit indices, one cannot conclude that the model adequately describes the observed data. The model fits the data poorly according to all of the model fit indices observed for these data.

Due to the poor fit of the data, the researcher consulted the LISREL output, namely, the modification indices, to determine how alterations of the model would improve overall model fit. Three adjustments were made to improve the model: (a) a direct path was added between difficulties in emotion regulation and alcohol use consequences, (b) a direct path was added between psychological distress and alcohol use intensity, and (c) the error associated with difficulties in emotion regulation and psychological distress was allowed to covary. The researcher made the decision to add these parameters to the hypothesized model based on a priori hypotheses and consulting the literature. The standardized solution of the revised model is depicted in Figure 8.

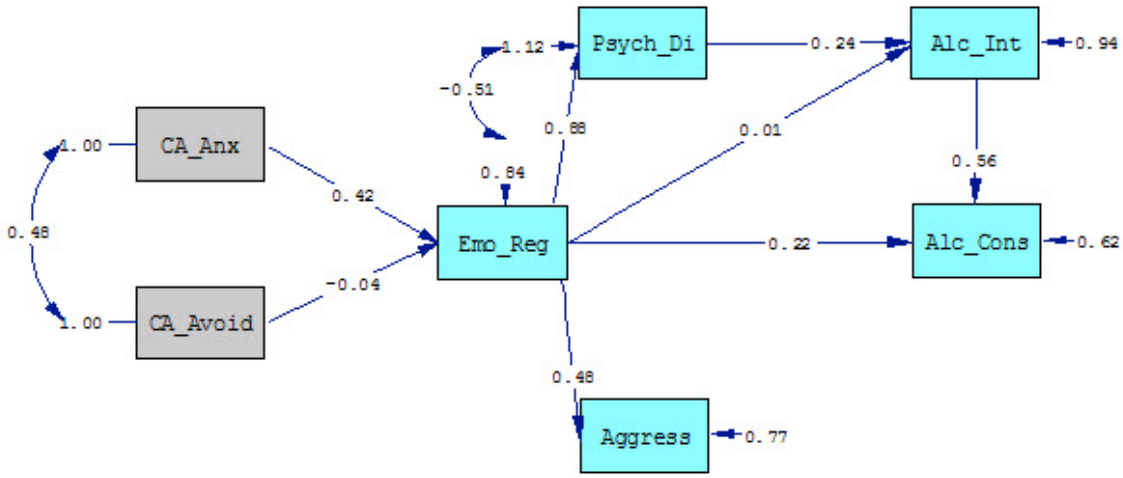


Figure 8. Model 3b: Standardized Solution of the Revised Model (N = 189)

Evaluation of the global fit statistics revealed that model 3b was a marginal fit for the data (Table 23). The CFI (.929) was above the threshold of reasonable fit (CFI ≥ .90) and the SRMR was .061, meeting the desired criteria for good model fit (SRMR ≤ .10; Kline, 2011). However, the Chi-square fit statistic, $\chi 2 = 34.28$ ($df = 11$, $p < .001$) was statistically significant indicating a rejection of model fit. The RMSEA was .106, indicating a poor model fit due to it being greater than the desired RMSEA ≤ .05 (Kline, 2011). To determine which model was the most appropriate fit for the data, a Chi-square difference test was performed for models 3a and 3b. The Chi-square difference statistic was significant ($\chi^2_D = 35.59$; $df = 3$; $p < .001$), indicating that the revised model was preferred to the original, hypothesized model. Although a marginal fit for the data, the revised model may have some utility in its interpretation. Overall, the model accounted for 77.4% of the variance in psychological distress ($R^2 = .764$), 38.4% of the variance in consequences of alcohol use ($R^2 = .384$), 23.2% of the variance in aggression ($R^2 = .232$),

and 16.1% of the variance in difficulties in emotion regulation, but just 5.9% of the variance in alcohol use intensity (R^2 = .059).

Table 23

Goodness of Fit Indices for the Hypothesized and Revised Models

Model	SRMR	RMSEA	CFI	χ^2	df	χ^2_D	df_D	*p*
3a	0.116	0.145	0.830	69.87	14			
3b	0.061	0.106	0.929	34.28	11	35.59	3	.001

Note. N = X; χ2 = chi square estimate; *df* = degrees of freedom; SRMR = Standardized Root Mean Square residual; RMSEA = Root Mean Square Error of Approximation; CFI = Comparative Fit Index

Hypothesis Four: Direct and Indirect Effects

Finally, the researcher hypothesized that difficulties in emotion regulation would mediate the relationship between coach-athlete attachment and aggression, alcohol use intensity, alcohol use consequences, and psychological distress. To test this hypothesis, the standardized solutions for the revised path model will be used to evaluate direct and indirect effects of the study variables.

Beta weights indicating direct effects between study variables and significance tests for each pathway were analyzed (see Table 24). The researcher predicted that a significant direct effect would be identified between coach-athlete attachment and difficulties in emotion regulation; however, this hypothesis was only partially supported. The standardized coefficient of the direct effect of coach-athlete attachment anxiety on difficulties on emotion regulation was indicative of a moderately large effect (β = .42, p < .01). However, coach-athlete attachment avoidance did not have a significant direct

effect on difficulties on emotion regulation (β= -.04). Two of the three predicted pathways between difficulties in emotion regulation and the outcome variables of the model were significant. Difficulties in emotion regulation had a large, positive, significant effect on aggression (β = .48, p < .01). Upon allowing the error to covary between difficulties emotion regulation and psychological distress, a large, positive direct effect was significant between difficulties in emotion regulation and psychological distress (β = .88, p < .01). The pathway between difficulties in emotion regulation and alcohol use intensity was not significant (β = .01). Significant direct effects were found among the added pathways of the revised model. The direct effect of difficulties in emotion regulation on alcohol use consequences (β = .25, p < .01) and psychological distress on alcohol use intensity (β = .24, p < .01) were both moderate in their effect.

Table 24

Standardized Solution (ML) Estimates for the Hypothesized and Revised Models

Parameter	Hypothesized Model	Revised Model
	Direct Effects	
Anxiety → ER	.43*	.42*
Avoidance → ER	-.06	-.04
ER → Aggression	.48*	.48*
ER → AU Intensity	.10	.01
ER → AU Consequences	N/A	.25*
ER → Psych Distress	.37*	.88*
AU Intensity → AU Consequences	.58*	.56*
Psych Distress → AU Intensity	N/A	.24*

*Note. *p < .05; **p <.01; Anxiety = Coach-Athlete Attachment Anxiety; Avoidance = Coach-Athlete Attachment Avoidance; ER = Difficulties in Emotion Regulation; AU = Alcohol Use; Psych Distress = Psychological Distress*

The researcher also hypothesized that indirect effects of coach-athlete attachment on aggression, alcohol use intensity, and psychological distress through emotion regulation would be significant. To test for indirect effects, Sobel Tests for Mediation provided in the LISREL output were utilized. All indirect effects on endogenous variables of the model that included coach-athlete attachment anxiety as a predictor in the mediation were found to be significant. Conversely, none of the indirect effects that included coach-athlete attachment avoidance as a predictor were significant. The final mediation of the initially hypothesized model, the indirect effect of emotion regulation on alcohol use consequences through alcohol use intensity, was significant (.30, $p < .05$). The addition of two pathways in the revised model resulted in two additional mediations. Both the pathway of emotion regulation to alcohol use intensity through psychological distress (.027, $p < .01$) and psychological distress to alcohol use consequences through alcohol use intensity (.063, $p < .01$) were significant.

Table 25

Test of Standardized Indirect Effects of the Revised Model

Mediation	Indirect Effect
Anxiety → ER → Aggression	.194**
Anxiety → ER → AUI	.026*
Anxiety → ER → BYAACQ	.079**
Anxiety → ER → Psych Distress	.429**
Avoidance → ER → Aggression	-.017
Avoidance → ER → AUI	-.002
Avoidance → ER → BYAACQ	-.007
Avoidance → ER → Psych Distress	-.037
ER → AUI → AU Consequences	.030*

Table continues

Mediation	Indirect Effect
ER → Psych Distress → AU Intensity	.027**
Psych Distress → AU Intensity → AU Consequences	.063**

Note. *$p < .05$; ** $p < .01$

Summary of the Results

The purpose of this chapter was to test the four hypotheses associated with the research questions of the full dissertation study that were presented in Chapter I. The hypothesis of the first research question was mostly supported. All relationships between variables of the hypothesized path model were positive and significant other than difficulties in emotion regulation and alcohol use intensity, which was a positive association but not significant. .

The second hypothesis, that the data would provide an acceptable fit for Davis and Jowett's (2013) two-factor Coach-Athlete Attachment Scale was not supported. This conclusion may have been made due to the small sample size in this study. The sample of 189 student-athletes was not enough to properly analyze the factor structure of the CAAS. A sample of 290 was needed to fulfill the 10:1 parameter to sample ratio needed to properly analyze a CFA (Kline, 2011). Therefore, the researcher analyzed each factor of the CAAS independently. When compared to the two-factor model, both one-factor models displayed significantly better model fit than the two-factor model. Factor loadings for the items met criteria to be considered adequate representation of each latent factor (Anxiety and Avoidance).

Research questions 3 specifically addressed the hypothesized model of student-athlete mental health developed by the researcher. The hypothesis that this model would

provide an acceptable fit for the data was not supported. Modification indices provided by the analysis output led the researcher to developing a revised model that included an additional direct path between difficulties in emotion regulation and alcohol use consequences and allowed the error associated with emotion regulation and psychological distress to covary. The resulting model was found to have marginal fit and fit the data significantly better than the originally hypothesized model.

Finally, direct effects and mediation in the revised model were acknowledged. Several of the hypothesized pathways in the model were significant with at least a moderate effect. One of the model's predictors, coach-athlete attachment anxiety, was found to be a significant predictor of difficulties in emotion regulation; whereas, coach-athlete attachment avoidance was not significant in the model. The direct effect of difficulties in emotion regulation on aggression and psychological distress were both large and positive, as was the pathway from alcohol use intensity to alcohol use consequences. Upon revising the model, the two added pathways from emotion regulation to alcohol use consequences and psychological distress to alcohol use intensity were also significant. Difficulties in emotion regulation, the primary mediator of the model, was responsible for indirect effects from coach-athlete attachment anxiety onto aggression, alcohol use intensity, alcohol use consequences, and psychological distress; however, difficulties in emotion regulation did not mediate the relationship between coach-athlete attachment avoidance and the outcome variables of the study. Alcohol use intensity did significantly mediate difficulties in emotion regulation and alcohol use consequences. In the revised model, psychological distress significantly mediated

difficulties in emotion regulation and alcohol use intensity, and alcohol use intensity significantly mediated psychological distress and alcohol use consequences.

CHAPTER V

DISCUSSION

The results of the research questions and tested hypotheses of the study were presented in Chapter IV. In Chapter V, these results are interpreted to provide the reader with clarity on how the findings may impact counseling practice, instruction, and research. First, descriptive statistics for the participant sample and reliability estimates for the instrumentation of the study are discussed. The results of each of the four study hypotheses are discussed, including how coach-athlete attachment, emotion regulation, aggression, alcohol use, and psychological distress were present in the study sample. Next, the limitations to this research, including patterns of socially desirable responding among the sample, are identified. Finally, the researcher describes implications for counselors, counselor educators, and future research before summarizing the discussion to complete the chapter.

Participants

The researcher recruited 189 NCAA Division I student-athletes from a total of four universities from the Eastern United States. All participants in the study were between the ages of 18 and 23 years old, which is consistent with the NCAA's report of student-athlete ages (NCAA, 2014). The majority of participants described their gender identity as female (N = 138; 73%); however, the NCAA (2014) reported that just 46.4% of Division I student-athletes were female. This disparity may have implications on the

validity of the results of this study when generalizing to the entire population of Division I student-athletes. In addition, the majority of student-athlete participants were White (*N* = 135; 71%), whereas 15.3% (N = 29) described their ethnicity as Black/African-American/Caribbean. The NCAA (2014) reported that the entire Division I population for the 2013-2014 season was comprised of 61.3% White and 20.3% Black student-athletes.

Instrumentation

The two subscales of the Coach-Athlete Attachment Scale (CAAS; Davis & Jowett, 2013), Anxiety and Avoidant; the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004); the Buss-Perry Aggression Questionnaire Short Form (BPAQ-SF; Bryant & Smith, 2001); the Brief Young Adult Alcohol Consequences Questionnaire (BYAACQ; Kahler, Strong, & Read, 2005); the 21- Item Depression, Anxiety, and Stress Scales (DASS-21; Lovibond & Lovibond, 1995); the two subscales of the Experiences in Close Relationships-Short (Wei et al., 2007), Anxiety and Avoidance; the Balanced Inventory of Desirable Responding-Revised (BIDR; Paulhus, 1991; Steenkemp, De Jong, & Baumgartner, 2010); and the Alcohol Use Disorder Identification Test for Consumption (AUDIT-C; Bush, Kivlahan, & McDonell, 1998) were included in the analysis of the data and exploration of the research hypotheses. The reliability, normality, and utility of each instrument will be discussed.

The researcher's decision to validate the use of the CAAS with NCAA Division I student-athletes proved to be an important step in the full study. Initial item-level analyses of the CAAS indicated that the 14 items developed by Davis and Jowett (2013) were within acceptable ranges in terms of their skewness (< 3.00) and kurtosis (< 10.00;

Kline, 2011). Though item 3 of the Anxiety subscale, "*I worry a fair amount about my coach leaving me to coach elsewhere,"* displayed moderate skewness and kurtosis, its poor item-total correlation (r = .345) led the researcher to question its inclusion in the scale. With this item was excluded, the Anxiety (α = .927) and Avoidance (.928) scales of the CAAS possessed strong internal consistencies that were an improvement on the estimates provided by Davis and Jowett's (2013) analyses (i.e., .82 and .86 respectively). In this study, the two factors correlated at .51, and thus related to a greater degree than in Davis and Jowett's (2013) original study of the two-factor model (r = .41). Mean scores on the Avoidance subscale were generally higher than those on the authors' study and lower on the Anxiety subscale.

Reliability estimates for the measures associated with the endogenous variables of the path model were excellent ($\alpha \geq .864$). The mean total score for the DASS-21 (M = 11.15) was similar to what has been reported on the measure with a similarly aged population (M = 12.61; Osman et al., 2012). The difference in this score may be due to the differing demographics of the sample population, including gender distribution (25.9% male in this study, 41% in Osman and colleagues' study) and ethnicity (4% Hispanic/Latino American in this study, 22% Hispanic/Latino American in their study). Mean total scores for the BPAQ-SF were higher than in another study performed with current and former collegiate athletes (Kerr, Evanson, Rosamond, Mihalik, Guskiewicz, & Marshall, 2014); however, the sample population in this study was quite different, as several of the participants had spent a noteworthy amount of time in retirement. Finally, the mean total scores associated with difficulties in emotion regulation were notably

higher than in one study of undergraduates (50.00; Lilly and Lim, 2013). In the dissertation study, a mean score of 74.77 was found, which is comparable to what was found for a sample of survivors of intimate partner violence (M = 72.51) in that same study by Lilly and Lim, 2013).

The scores on the AUDIT-C were compared and contrasted with DeMartini & Carey's (2012) optimization of the AUDIT-C with college students. In their study, non-drinkers were removed from the sample when tabulating means to develop a true understanding of alcohol use intensity among drinkers. When this was performed in the current study, the mean score was 4.35 (N = 147), compared to 5.34 in DeMartini & Carey's study (N = 401). Researchers have reported that student-athlete alcohol use is more intense than non-athlete students' use (e.g. Martens, Dams-O'Connor, & Beck, 2006; Nelson & Wechsler, 2001) and continues to be a primary research focus of the NCAA (2014). Similarly, low scores were reported on the measure of alcohol use consequences (BYAACQ) when compared to a large sample of college students at a Southeastern University (Wahesh, 2013). The difference in these means may be attributed to sample artifact or potentially, the pattern of socially desirable responding to the AUDIT-C and BYAACQ that was found among the participants of the dissertation study.

Major Findings

Factor Structure of the Coach-Athlete Attachment Scale

A CFA was performed to verify the factor structure of Davis and Jowett's (2013) 14-item, two-factor model of the CAAS. Although the sample size was insufficient to test

the two-factor model, the factors were analyzed separately as one-factor models of Anxiety and Avoidance. A preliminary review of the factor loadings revealed that the third item of the Anxiety subscale was measuring the latent factor poorly ($\beta = .32$), a value clearly below the conservative level of .6 for factor loadings (Matsunaga, 2010). In Davis and Jowett's (2013) preliminary analysis of the CAAS, they kept this same item after it performed poorly in their study as well ($\beta = .39$), citing Hoffmann's (1995) assertion that items with primary factor loadings greater than .30 can be kept when identifying a general structure of a hypothesized factor model. The researcher decided to eliminate this item from the overall analysis due to its poor factor loading and include the remaining 13 items on the Anxiety and Avoidance scales.

The validity of the CAAS was tested by performing a correlation between the Anxiety and Avoidance scales of this instrument with another measure of attachment, the Experiences in Close Relationships-Short Form (ECR-S; Wei et al., 2007), a general measure of attachment that requires the survey participant to think broadly across their approach to romantic relationships when responding to items. This analysis was performed to determine evidence of convergent validity. According to Ainsworth (1989), affectional bonds developed in infancy and childhood extend to other important figures across the lifespan. Based on the tenets of Attachment Theory, one would assume that attachment anxiety and attachment avoidance on the ECR-S would positively and significantly correlate with the anxiety and avoidance subscales of the CAAS; however this was not the case for both subscales. Whereas the Anxiety subscale of the ECR-S correlated significantly ($r = .225$; $p < .01$) with the Anxiety subscale of the CAAS, the

avoidance subscale of the CAAS was not significant related to the avoidance subscale of the ECR-S (r = -.072). This finding is surprising and raises questions regarding the validity of the CAAS' Avoidance subscale. A reasonable next step for this line of research using the CAAS would be a validation study in which the scale is adjusted to demonstrate strong convergent and discriminant validity with the scales of the ECR-S.

Additional research is clearly needed to validate the use of this instrument with NCAA Division I student-athletes. Davis' and Jowett's (2013) initial study was conducted with 298 athletes from club to international levels in England and further, athletes reported about 5 hours a week of time spent with their coaches. The athletes who participated in the current study are regularly required to spend up to 20 hours per week participating in practice, training, and competition during the season, and 8 hours per week outside of those times (NCAA, 2009). These hours do not include team meals, travel, and other miscellaneous times that athletes may be in contact with their coaches. Additionally, the majority of the sample in the current study was female, whereas Davis and Jowett's (2013) sample was balanced and perhaps more representative of the athlete population. As a result of the analysis of the CAAS, the path model and specific direct and indirect effects involving the CAAS should be interpreted with some caution.

Assessing Goodness of Fit for the Hypothesized and Revised Models

Hypothesis three was tested to determine if the hypothesized path model provided an acceptable fit for the data. Upon testing the model using path analysis, all indications were that the model provided a poor fit for the data. The researcher consulted goodness of fit indices and modification indices reported in the LISREL print out to evaluate model fit

and to consider the addition or removal of parameters to improve the model. Upon consultation with the literature, the researcher revised the hypothesized model. The revised model (Figure 9) showed significantly improved fit for the sample data.

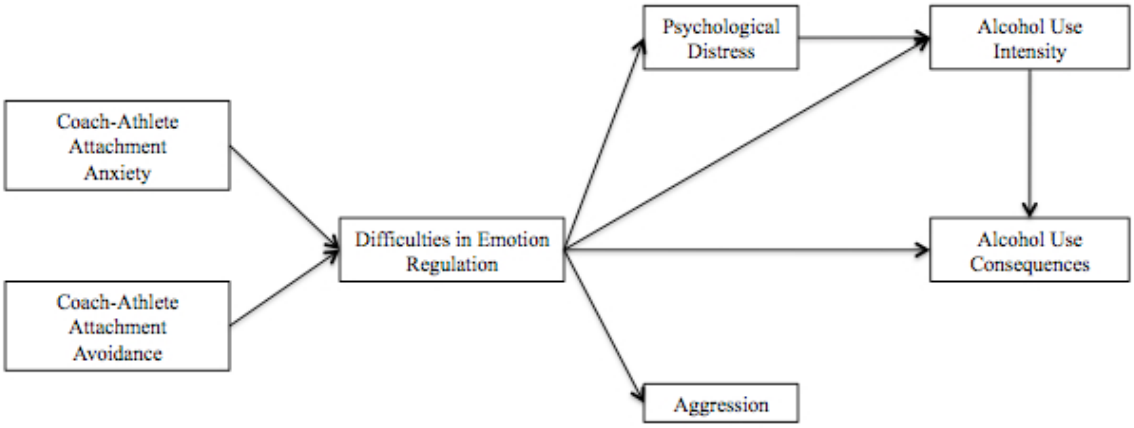


Figure 9. Conceptual Diagram of the Revised Path Model.

The hypothesis test associated with the path model indicated that additional paths needed to be included to improve the model of student-athlete mental health. The researcher concluded that an additional path from psychological distress to alcohol use intensity as well as from difficulties in emotion regulation to alcohol use consequences was necessary to reflect the findings in the extant literature as well as the collected data. Interestingly, the addition of the significant pathway from difficulties in emotion regulation to alcohol use consequences confirms the findings of Dvorak and colleagues' (2014) study that linked difficulties with impulse control and goal directed behavior, lack of emotional clarity, and non-acceptance of emotional responses with increased frequency of alcohol-related consequences. The inclusion of this pathway within a

student-athlete sample has not been suggested by previous research findings, but adds appreciably to the complexity of the model and the overall fit.

Contrary to the hypothesized model, the addition of a direct effect from psychological distress to alcohol use intensity improved model fit. Although not previously considered, several research studies support this result among a college student population. For example, in an undergraduate student sample, participants who reported greater levels of psychological distress symptoms (e.g. depression, anxiety, somatization, paranoia) also reported greater alcohol consumption (Geisner, Larimer, Neighbors, 2004). Similarly, Weitzman (2004) reported that individuals with indicators of poor mental health and depression were more likely to engage in frequent and heavy episodic drinking. Thus, the inclusion of difficulties in emotion regulation as a predictor of alcohol use intensity and consequences expands the current literature base in terms of the variables that contribute to problematic drinking behaviors among student-athlete populations.

Direct Effects and Mediation of the Revised Path Model

Hypothesis four was designed to test the direct effects associated with the hypothesized model and the testing of difficulties in emotion regulation as a mediator between coach-athlete attachment and student-athlete mental health outcomes. Significant and non-significant pathways that were kept in the revised model as well as the indirect effects associated with emotion regulation are discussed below in relation to the current literature.

The pathway from coach-athlete attachment avoidance to difficulties in emotion regulation was retained in the revised model, though the direct effect was not statistically significant and in the negative direction. As discussed in the dissemination of hypothesis two, the coach-athlete attachment avoidance construct may not, in its current form, be a valid measure of attachment. Another explanation may be related to the pattern of socially desirable responding witnessed in the student-athlete sample data. Researchers have reported that individuals with high attachment avoidance may be less willing to document distress. For instance, in a study by Diamond and Fagundes (2010), the researchers found that avoidant individuals self-reported lower levels of subjective distress but also experienced higher blood pressure and greater electrodermal reactivity in response to general stressors than did secure individuals. Taking these earlier findings into consideration, participants in the current study who were highly avoidant and thus, self-regulate by denying their distress, may have reported lower levels of aggression, alcohol use consequences, difficulties in emotion regulation, and psychological distress. This finding could explain the lack of significant relationships between attachment avoidance and the dependent variables of the study.

Although not statistically significant, the direct pathway from difficulties in emotion regulation to alcohol use intensity was maintained in the revised model due to the fact that difficulties in emotion regulation was found to be a significant mediator of coach-athlete attachment anxiety and alcohol use intensity, which is consistent with underlying theory. The finding is supported by the work of Khantzian (2013; 1997), who concluded that excessive substance use is a coping mechanism for managing distress;

particularly, distress related to interpersonal conflict. Similarly, Nolan-Hoeksema & Harrell's (2002) findings, that individuals who reported a tendency to ruminate in a maladaptive attempt to regulate their emotions used alcohol more often, are further confirmation of the decision to keep the pathway. Therefore, the current results provide evidence that increased rumination is predictive of increased alcohol use.

Several of the hypothesized pathways in the current study were confirmed upon analysis of the model. Specifically, a significant and positive direct effect was observed from difficulties in emotion regulation to psychological distress. This finding is confirmation of existing literature that has demonstrated this relationship among various samples, yet the finding extends the current knowledge base by demonstrating the significant finding among a student-athlete sample. The findings of the current study confirm conceptualizations of depression, anxiety, and stress as the product of maladaptive emotion regulation patterns like worry, rumination, and suppression (e.g. Joorman & Siemer, 2014; Nolan-Hoeksema et al., 2008). In addition, difficulties in emotion regulation significantly predicted aggression in the student-athlete sample. Although this relationship had yet to be described in research with student-athletes, the findings are consistent with the findings that Savage (2014) reported in her review of the attachment and aggression literature. Specificially, Savage outlined the clear relationship between insecure attachment in parental bonds and increased levels of physical violence. Cohn et al. (2010) and Buist et al. (2004) produced similar results in their research with regard to the impact of maladaptive emotion regulation on aggressive tendencies.

Indirect effects were significant among two of the originally hypothesized pathways in which difficulties in emotion regulation mediated the relationship between coach-athlete attachment and student-athlete mental health outcomes. This finding highlights the importance of incorporating emotion regulation into models of student-athlete mental health. First, it was found that difficulties in emotion regulation significantly mediated coach-athlete attachment anxiety and aggression. Although attachment and emotion regulation have each been linked to aggression in previous studies, a mediation model containing these variables had not yet been explored. Further, this pathway was fully mediated, as the addition of a direct pathway from coach-athlete attachment anxiety to aggression would not have meaningfully altered the fit of the hypothesized model. Researchers should continue to explore the relationship between these three variables, as investigations have yielded significant direct effects between attachment and aggression (e.g. Buist et al., 2004). Savage (2014) refers to emotion regulation as a potentially important link between attachment insecurity and violence but regardless, the current findings provide further support that adaptive emotion regulation and by extension, the coach-athlete relationship, play an important role in the student-athlete's level of aggression.

Difficulties in emotion regulation partially mediated the relationship between coach-athlete attachment anxiety and psychological distress, as the inclusion of a direct pathway between coach-athlete anxiety and psychological distress would have appreciably improved model fit. This finding suggests that the student-athlete's relationship with s coach may be an important factor in understanding one's mental

health given the influence of this relationship on emotion regulation, and the fact that psychological distress often manifests as a result of maladaptive emotion regulation. These results mirror the findings of Marganska et al. (2014), who determined that one's perception of an inability to regulate one's emotions mediates insecure (i.e. anxious and/or avoidant) attachment and depression and symptoms of Generalized Anxiety Disorder. However, the findings of the present study aer the first to make this finding among a sample of NCAA Division-I student-athletes.

The hypothesis that difficulties in emotion regulation would mediate coach-athlete attachment anxiety and alcohol use intensity could not be successfully tested. The model did not satisfy Baron and Kenny's (1986) criteria for mediation, as difficulties in emotion regulation and alcohol use intensity were not significantly correlated (r = .095). One potential explanation for the lack of a relationship between these variables could be an underreporting of alcohol use intensity. The present study utilized a cross-sectional design, which required participants to recall the intensity of their alcohol use. According to White, Kraus, McCracken, and Swartzwelder (2003), college students typically underreport the amount of alcohol they consume due their underestimation of one standard drink. However, difficulties in emotion regulation did significantly mediate coach-athlete attachment anxiety and alcohol use consequences in the revised model. The finding that difficulties in emotion regulation would mediate attachment anxiety and alcohol use consequences but not alcohol use intensity is somewhat unexpected. Researchers have supported a link between secure attachment to one's mother (e.g. low attachment anxiety and avoidance) and reporting fewer consequences of alcohol use in

addition to lower levels of alcohol use intensity (Labrie & Sessoms, 2012). One possible explanation for this unusual pattern is that participants may have been able to recall if they had specific experiences due to alcohol use more accurately than how much they typically drink.

The results of the present study are an important contribution to the existing literature and are an indication that future student-athlete centered research should further explore the study constructs. A test of the validity and factor structure of a new measure based on a conceptualization of the athletic coach as an attachment figure, the Coach-Athlete Attachment Scale (Davis & Jowett, 2013), raised some concern regarding the construct validity of the Avoidance scale and the overall applicability of the measure with NCAA Division-I student-athletes. Nevertheless, the current study extends the literature by applying adult attachment theory with a population whose mental health has been given relatively little research attention. In fact, prior to the current study, student-athlete perceptions of the coach-athlete relationship had not been considered as a significant contributor to any of the endogenous mental health factors of the hypothesized model. Subsequently, further attention should be given to understanding experiences of attachment anxiety in the coach-athlete dyad, as such anxiety was predictive maladaptive emotion regulation patterns among student-athletes. Another important contribution of the current study to the overall literature in this area of inquiry was the fact that the influence of a student-athlete's pattern of emotion regulation on mental health factors had not been explored in previous research. Therefore, the finding that aggression, alcohol use, and psychological distress were all significantly influenced by difficulties in emotion

regulation is an important outcome of this study and one that warrants future investigation. A more thorough understanding of the role that emotion regulation plays in student-athlete mental health may prove crucial to the formulation of effective counseling treatments for this high-profile population.

Limitations

Accurate interpretations of the study findings cannot be made without consideration of the study's limitations. The sample of student-athletes who participated in this study was collected from four midsized to large universities in the Eastern United States and recruitment was performed via convenience sampling. Consequently, the findings may not be generalizable to student-athletes of other regions.

All student-athletes who participated in the study compete at the Division-I level of NCAA athletics. Other athletes experiences are unique from this sample of elite athletes; other NCAA athletes, athletes of the National Association of Intercollegiate Athletics (NAIA), and individuals who participate in club or recreational athletics may not be reflected in the results. Subsequently, the results of this study cannot be generalized to these other categories of athlete.

Another limitation of this study was that male student-athletes were severely underrepresented in the sample (25.9%), whereas white student-athletes were overrepresented (71.4%) when compared to the NCAA's (2014) report that 61.3% of Division-I athletes were white. Additionally, the majority of student-athletes participated in non-contact sports. According to Lemeiux, McKelvie, and Scott (2002), student-

athletes participating in a contact sport display greater levels of aggression than those in non-contact sports.

The analysis of the Coach-Athlete Attachment Scale is limited in that the sample size ($N = 189$) was not large enough to justify a confirmatory factor analysis of the original two-factor model described by Davis and Jowett (2013). Although reliability estimates for the Anxiety and Avoidance subscales were adequate (.927; .928) and a poorly performing item was removed from the Anxiety subscale prior to the path analysis, neither the two-factor or subsequent one-factor models of Anxiety and Avoidance provided a good fit for the data.

Self-report measures of attachment are inherently limited in their capacity to capture the construct as noted by Ravitz, Maunder, Hunter, Sthankiya, and Lancee (2010), who highlight the potential flaws of self-report measures of attachment. Among the limitations of self-report measures of attachment is their tendency to capture *current* views of the respondent's experience in relationships, thereby generating results that may be volatile. In that same vein, participants may not report attachment phenomena that cannot be captured unless activated. To address this limitation, future researchers should consider coding observed data related to attachment patterns. In short, given these challenges, analyses involving the CAAS must be interpreted with caution.

Socially desirable responding is a limitation that became quite evident in pilot testing, as several student-athlete participants provided feedback indicative of their mistrust regarding the confidentiality of the study results. Suspicion may have been due to serious consequences such as loss of NCAA eligibility and/or scholarships if an athlete

is found guilty of illegal behaviors. The researcher took several measures to address socially desirable responding by discussing in the informed consent the methods of data collection and how data would be confidentially maintained. Further, the researcher obtained a waiver of signed consent form from the IRB to guarantee anonymity. Perhaps most enlightening were the results of the multivariate regression including the variables of the hypothesized path model and the Balanced Inventory of Desirable Responding, a measure used specifically to identify significant patterns of socially desirable responding among study participants.

Patterns of socially desirable responding were found among all study variables of the hypothesized path model except for coach-athlete attachment avoidance. Researchers who have used the BIDR have identified risky drinking behaviors (Davis Thake, & Vilhena, 2010), aggression measured on the BPAQ-SF (Vigil-Colet, Ruiz-Pamies, Anguiano-Carrasco, and Lorenzo-Seva), and self-reported depression (Fastame & Penna, 2013) as specific constructs that are frequently responded to in a socially desirable manner. Furthermore, previous researchers have argued that student-athletes are apprehensive of being stigmatized by others (Linder, Brewer, Van Raalte, & DeLange, 1991) and therefore may not report personal issues (Watson, 2005). As a result of the aforementioned analysis of patterns of socially desirable responding, the results of the study must be interpreted with caution.

Implications

The major findings from the hypothesis testing of a model of student-athlete emotion regulation and attachment on mental health outcomes hold important

implications for counseling practice, research, and counselor education. The following section describes the ways the study results may influence the work of counseling practitioners, researchers, and educators. The idea is posited that a rationale exists for conceptualizing student-athletes as a unique subpopulation of college students that will require specialization of counseling services. In addition, special considerations for counselors working with student-athletes and the need for greater advocacy for involvement of the counseling profession in providing services to this population are discussed. Finally, considerations for future researchers who wish to build on this study's findings are explored.

Implications for Counselors and Counselor Educators

The study results support the importance of understanding the role of developmental factors (i.e. attachment and emotion regulation) in understanding student-athlete mental health. Due to the fact that emotion regulation appears to serve as an important mediator between coach-athlete attachment and aggression, psychological distress, and alcohol use consequences, it is appropriate for counselors to consider utilizing counseling theory that emphasizes a holistic conceptualization or addressing a client's history of close relationships through childhood when working with student-athletes.

Perhaps most importantly, the results of this study provide a preliminary look at the uniqueness of the coach-athlete relationship and suggest its importance to overall student-athlete mental health. Counselors working with Division-I NCAA athletes should consider inquiring about the student-athlete's relationship with their principal coach as

part of the process of formulating counseling goals. The student-athlete's perception of the coach-athlete relationship may provide the counselor some insight into an athlete's difficulty difficulties with emotion regulation, which in turn, may be a primary reason for heightened aggression, psychological distress, or alcohol use consequences. A student-athlete's perception of the relationship with their coach may mirror perceptions of other close relationships in their life including important friendships, romantic relationships, caregiver relationships, and the counselor-client dynamic.

The present study may serve to introduce an argument for counselors and counselor educators to bolster their understanding of student-athletes as a population with unique challenges and circumstances. As evidenced by the results of this study, a student-athlete's pattern of emotion regulation may be influenced by the coach-athlete relationship and further, may be linked to student-athletes' experiences of aggression, psychological distress, and alcohol use. These conclusions, when integrated into mental health practice with athletic populations, may provide direction for counseling and psychology services that could potentially improve an individual's ability to regulate emotions and perhaps decrease their experiences of psychological distress. Further, the findings may highlight the need for counselors and counselor educators to increase their investment in establishing competence with athletic populations. According to the American Counseling Association code of ethics, "Counselors practice in specialty areas new to them only after appropriate education, training, and supervised experience. While developing skills in new specialty areas, counselors take steps to ensure the competence of their work and to protect others from possible harm" (ACA, 2014, p. 8; Section C

Professional Responsibility). Currently, it is highly unlikely that counselors who regularly work with athletes have had training based on an intentionally and empirically derived set of competencies and teaching guidelines. Furthermore, Watson (2005) determined that student-athletes experience a stronger therapeutic relationship with counselors who are knowledgeable of sport culture and what their experience in collegiate athletics entails. To increase their understanding of sport culture, counselors may want to consider attending trainings provided by other mental health fields.

Implications for Future Research

The present study served as an important first step at developing a conceptual, developmentally oriented understanding of student-athlete mental health. A next step for understanding student-athlete mental health will be to include additional mediators that are supported by the literature. The hypothesized model depended on one variable (difficulties in emotion regulation) to explain all of the variance in mental health outcomes, which in an unrealistic expectation. Additionally, the lack of a direct effect between coach-athlete attachment avoidance and difficulties in emotion regulation as well as difficulties in emotion regulation and alcohol use intensity requires additional testing to fully understand, as it the existing theoretical literature tends to support these relationships. The provision of an argument for why these elements of the exploratory model should be altered or removed from the overall model is warranted prior to making any further conclusions. Regardless, the path model provides significant evidence that an in-depth analysis of the individual mental health outcomes and relationships among variables in the model is warranted.

Another area of study involves conducting nuanced research with each of the endogenous variables of the study. For instance, several facets of emotion regulation are incorporated in the variable utilized in this study (e.g. nonacceptance of emotional responses, impulse control difficulties, etc.), whereas aggression included physical and verbal aggression as well as hostility and anger. Also, significant positive correlations between the global attachment measure and difficulties in emotion regulation among a student-athlete population are an indication that romantic relationships and additional attachments outside of the sport context may be affecting student-athlete experiences of mental health. Several variables that were not included in the model have been found to influence drinking habits of student-athletes including descriptive (Author & Paladino, 2008) and injunctive (Hummer, LaBrie, & Lac, 2009) social norms, which are representative of a student-athlete's overestimation of a peer's alcohol consumption and support for excessive drinking behavior (Berkowitz, 2014). Further, student-athletes with the belief that alcohol consumption will lead to positive experiences have been found to consume alcohol in higher frequencies (Zamboanga, Horton, Leitkowski, & Wang, 2006). Perhaps a more holistic understanding of student-athlete alcohol use intensity and consequences could be determined if these variables were also measured along side of emotion regulation.

Additional studies with the Coach-Athlete Attachment Scale are warranted, as this study did not have the sample size necessary to test the two-factor model as described by Davis and Jowett (2013). Although coach-athlete attachment avoidance did not add to the model and was only weakly correlated to the endogenous variables of the model, it

should still be considered in future studies with emotion regulation, as attachment theory supports this relationship. Also, a preliminary comparison of student-athlete and non-athlete student experiences of the mental health outcomes measured in the full study is presented in Appendix E. Future research comparing mental health factors among non-athlete students and student-athletes should be rigorous, perhaps by pairing participants based on demographic factors to improve the validity of the analysis.

Additional research that builds on the results of this study is important for counselor advocacy and for developing a better understanding of the developmental aspects of student-athlete mental health. Myers, Sweeney, and White (2002) proposed actions for advocacy in the counseling field that are applicable to the current state of counseling in sport. The authors highlight the importance of research that demonstrates the effectiveness of counseling outcomes. Perhaps research that determines an expert-developed set of sport counseling competencies and guidelines for teaching sport counseling could be next steps for the counseling profession in light of this researcher's conclusions. Although the current study was a cross-sectional look at student-athlete mental health, it provides researchers with a direction regarding outcomes that can be addressed and researched to prove counselor effectiveness with student-athletes. Demonstration of the effectiveness of counseling with student-athletes would project a positive public image of counselors in sporting spaces.

Finally, the significant effects of emotion regulation patterns on aggression and alcohol use consequences among student-athlete populations is important evidence of a need for counselors to be involved with student-athlete mental health treatment. As

previously discussed in Chapter II, the National Collegiate Athletic Association met with the United States Senate to improve sexual violence prevention education for student-athletes (Holden, 2014). Clearly, addressing this issue in student-athlete populations is of prime importance. Currently, the NCAA uses the CHAMPS/Life Skills program, employed at 330 of 340 schools with Division-I athletics, to offer topical, psychoeducational workshops for student-athletes on personal, practical, and emotional issues. However, these interventions are rarely, if ever, individualized and incorporate the therapeutic contact associated with counseling practice. Counselors, conversely, are well versed in theoretical and practical approaches to addressing maladaptive emotion regulation patterns. One example is dialectical behavior therapy (DBT; Linehan, 1993), in which difficulties in emotion regulation are conceptualized as a consequence of negative experiences in early childhood and adolescence. The results of this study may provide evidence of the need for individualized treatment for student-athletes regarding their aggression, alcohol use, and psychosocial distress as they related to patterns of emotion regulation.

Conclusion

The researcher sought to expand the current state of the literature by contributing empirical research regarding student-athlete mental health using attachment theory as a foundation for understanding how emotions are regulated. Data analysis revealed that the Coach-Athlete Attachment Scale and a revised path model of student-athlete mental health each provided a marginal fit for the data. Difficulties in emotion regulation fully mediated the association between coach-athlete anxiety and aggression, whereas coach-

athlete anxiety and psychological distress were partially mediated by emotion regulation. Furthermore, emotion regulation partially mediated coach-athlete attachment anxiety and alcohol use consequences. Coach-athlete attachment anxiety significantly predicted difficulties in emotion regulation among student-athletes. Further, difficulties in emotion regulation were predictive of aggression, alcohol use consequences, and psychological distress. Future research is needed to determine a model of student-athlete mental health that demonstrates good model fit. The results of the study led to important implications for counselors, counselor educators, and researchers. Advocacy for counselors aiming to work in athletics, unique counseling treatment for student-athletes, and ideas for improved research of the study variables were discussed.

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APPENDIX A

INFORMED CONSENT FORM

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO
CONSENT TO ACT AS A HUMAN PARTICIPANT

Project Title: A Predictive Model of Coach-Athlete Attachment and Emotion Regulation on Student-Athlete Emotional Distress, Aggression, and Consequences of Alcohol Use

Principal Investigator and Faculty Advisor: Stephen P. Hebard, Dr. J. Scott Young, Dr. Todd F. Lewis

What are some general things you should know about research studies?
You are being asked to take part in a research study. Your participation in the study is voluntary. You may choose not to join, or you may withdraw your consent to be in the study, for any reason, without penalty.

Research studies are designed to obtain new knowledge. This new information may help people in the future. There may not be any direct benefit to you for being in the research study. There also may be risks to being in research studies. If you choose not to be in the study or leave the study before it is done, it will not affect your relationship with the researcher or the University of North Carolina at Greensboro.
Details about this study are discussed in this consent form. It is important that you understand this information so that you can make an informed choice about being in this research study.

You will be given a copy of this consent form. If you have any questions about this study at any time, you should ask the researchers named in this consent form. Their contact information is below.

What is the study about?
This is a research project. Your participation is voluntary. The purpose of this study is to gather information related to student-athlete coach-athlete attachment pattern and emotion regulation ability as well as subsequent patterns emotional distress, aggression, and consequences of alcohol use. A comparison in levels of emotional distress, aggression, and consequences of alcohol use will also be performed. You have the option to refuse to participate in this study or withdraw from participation at any time without penalty or prejudice. After you complete the six brief measures, please seal your survey packet in the provided manila envelope and place it in the box at the front of the room.

Why are you asking me?
You are being asked to participate in this study because you are between the ages of 18 and 25 years old and either a) an NCAA Division I affiliated student-athlete, or b) an undergraduate non-athlete student.

What will you ask me to do if I agree to be in the study?
Student-athletes will be asked to complete six instruments and a demographic form that measure coach-athlete attachment, difficulties in emotion regulation, emotional distress, aggression, and consequences of alcohol use. Together, this will take approximately 25 minutes.
Non-athlete students will be asked to complete four instruments and a demographic form that measure difficulties in emotion regulation, aggression, and consequences of alcohol use. Together, this will take approximately 15 minutes.

What are the risks to me?
The Institutional Review Board at the University of North Carolina at Greensboro has determined that participation in this study poses minimal risk to participants. Some questions related to emotional distress may create feelings of discomfort. If at any time, you feel discomfort, you may withdraw from this study without penalty. You may choose to skip any question tthat makes you feel uncomfortable. You also may choose to withdraw from the study at any time without penalty. If you would like to speak to a professional counselor regarding any emotions that arise, please visit the Counseling Center (336-334-5340) located on the second floor of the Anna M. Gove Student Health Center or the Vacc Counseling and Consulting Clinic (336-334-5340) located in room 223 of the Ferguson Building.

If you have questions, want more information or have suggestions, please contact Stephen P. Hebard who may be reached at (336) 334-5112 and sphebard@uncg.edu or Dr. J. Scott Young at 336-334-3464 and jsyoung3@uncg.edu. If you have any concerns about your rights, how you are being treated, concerns or complaints about this project or benefits or risks associated with being in this study please contact the Office of Research Integrity at UNCG toll-free at (855)-251-2351.

Are there any benefits to society as a result of me taking part in this research?
There may be benefits to society as a result of your participation in this research. The research may help determine the influence of coach-athlete attachment and emotion regulation in student-athletes. Your participation may allow the researcher to examine relationships between demographic variables, attachment, emotion regulation, emotional distress, aggression, and consequences of alcohol use. Information gleaned from this study may help researchers and counselors design prevention and intervention programs for student-athletes.

Are there any benefits to *me* for taking part in this research study?
There are no direct benefits to participants in this study.

Will I get paid for being in the study? Will it cost me anything?
There are no costs for participating in this study. All participants will have the option to enter their e-mail address into a raffle for $20 gift cards. E-mail addresses will not be linked to participant responses.

How will you keep my information confidential?
We are not requesting that you include your name with your completed instruments to ensure that your information cannot be traced back to you. Participants will place their completed survey packet into a sealed manila envelope to be kept closed until data is recorded. Survey packets will be stored in a locked file cabinet. Once recorded, survey packets will be shredded and discarded. The demographic form will be shredded immediately upon being uploaded. Recorded data will be stored on campus on a password-protected computer. All information obtained in this study is strictly confidential unless disclosure is required by law.

What if I want to leave the study?
You have the right to refuse to participate or to withdraw at any time, without penalty. If you do withdraw, it will not affect you in any way. If you choose to withdraw, you may request that any of your data which has been collected be destroyed unless it is in a de-identifiable state. The investigators also have the right to stop your participation at any time. This could be because you have had an unexpected reaction, or have failed to follow instructions, or because the entire study has been stopped."

What about new information/changes in the study?
"If significant new information relating to the study becomes available which may relate to your willingness to continue to participate, this information will be provided to you."

Voluntary Consent by Participant:
By completing this survey you are agreeing that you read, or it has been read to you, and you fully understand the contents of this document and are openly willing consent to take part in this study. All of your questions concerning this study have been answered. By completing this survey, you are agreeing that you are 18 years of age or older and are agreeing to participate, or have the individual specified above as a participant participate, in this study described to you by Stephen Hebard.

APPENDIX B

STUDENT-ATHLETE RECRUITMENT SCRIPT

RECRUITMENT SCRIPT (Student-Athlete participants)

You are being asked to participate in a research study. The purpose of this study is to gather information regarding the experiences and behaviors of student-athletes and non-athlete students. We are asking you to participate because you are between the ages of 18 and 25 and are registered as a full-time student. Full-time enrollment status is defined as being enrolled in at least 12 credit hours during this semester. The study, described further in this statement as well as in the Informed Consent form that has been distributed, will help you decide if you want to be a part of this study.

If you decide to participate in this study, you will be given a survey packet that takes about 25 minutes to complete. The items in this survey packet are related to your relationship with your coach and various factors associated with your mental health. You may refuse to participate or withdraw consent to participate in this study at any time. Your participation is voluntary. There are no payments made for participating in this study. All participants will have the option to enter their e-mail address into a raffle for $20 gift cards. E-mail addresses will not be linked to participant responses.

Some questions related to emotional aspects of depression, anxiety, and stress, as well as alcohol use may create feelings of psychological discomfort. If you decide to participate in the study, you will receive a handout that contains the contact information of four offices on campus that you can contact if you would like to discuss your use of alcohol and/or overall mental health and well-being. If you are below the minimum legal drinking age, by answering questions about illegal behaviors, you are at risk for legal trouble or discipline by UNCG. To minimize this risk, we are not requesting that you include your name or signature so that your survey responses cannot be traced back to you.

Your privacy will be protected as you will not be identified by name as a participant in this study. None of your information will be shared with coaches or administrative staff in athletics or otherwise. Further, all information obtained in this study is strictly confidential unless disclosure is required by law.

If you decide to participate, I will provide you with a survey packet to complete. After you have finished, please place the survey packet in the envelope provided and raise your hand. You will place the envelope in a box that will be stored in a locked and secure site on campus. All participants will have the option to enter their e-mail address into a raffle for $20 gift cards. E-mail addresses will not be linked to participant responses.

If you have any questions or concerns, please share them now and/or while you complete the survey packet. In addition, if you are curious about any aspect of the study, please contact myself (Stephen P. Hebard, Doctoral Student in the Department of Counseling and Educational Development at UNCG), or my advisor, Dr. J. Scott Young, Professor and Department Chair of the Department of Counseling and Educational Development at UNCG with any questions you may have about the study. Our contact information is listed on the document you have been given, titled, "CONSENT TO ACT AS A HUMAN PARTICIPANT: LONG FORM." Thank you.

APPENDIX C

NON-ATHLETE RECRUITMENT SCRIPT

RECRUITMENT SCRIPT (Non-athletes)

You are being asked to participate in a research study. The purpose of this study is to gather information regarding the experiences and behaviors of student-athletes and non-athlete students. We are asking you to participate because you are between the ages of 18 and 25 and are registered as a full-time student. Full-time enrollment status is defined as being enrolled in at least 12 credit hours during this semester. The study, described further in this statement as well as in the Informed Consent form that has been distributed, will help you decide if you want to be a part of this study.

If you decide to participate in this study, you will be given a survey packet that takes about 15 minutes to complete. The items in this survey packet are related to various factors associated with your mental health. You may refuse to participate or withdraw consent to participate in this study at any time. Your participation is voluntary. There are no payments made for participating in this study. All participants will have the option to enter their e-mail address into a raffle for $20 gift cards. E-mail addresses will not be linked to participant responses.

Some questions related to emotional aspects of depression, anxiety, and stress, as well as alcohol use may create feelings of psychological discomfort. If you decide to participate in the study, you will receive a handout that contains the contact information of four offices on campus that you can contact if you would like to discuss your use of alcohol and/or overall mental health and well-being. If you are below the minimum legal drinking age, by answering questions about illegal behaviors, you are at risk for legal trouble or discipline by UNCG. To minimize this risk, we are not requesting that you include your name or signature so that your survey responses cannot be traced back to you.

Your privacy will be protected as you will not be identified by name as a participant in this study. All information obtained in this study is strictly confidential unless disclosure is required by law.

If you decide to participate, I will provide you with a survey packet to complete. After you have finished, please place the survey packet in the envelope provided and raise your hand. You will place the envelope in a box that will be stored in a locked and secure site on campus. All participants will have the option to enter their e-mail address into a raffle for $20 gift cards. E-mail addresses will not be linked to participant responses.

If you have any questions or concerns, please share them now and/or while you complete the survey packet. In addition, if you are curious about any aspect of the study, please contact myself (Stephen P. Hebard, Doctoral Student in the Department of Counseling and Educational Development at UNCG), or my advisor, Dr. J. Scott Young, Professor and Department Chair of the Department of Counseling and Educational Development at UNCG with any questions you may have about the study. Our contact information is listed on the document you have been given, titled, "CONSENT TO ACT AS A HUMAN PARTICIPANT: LONG FORM." Thank you.

APPENDIX D

SURVEY PACKET

Student-Athlete Survey Packet

Today's Date:

Please indicate how often the following statements apply to you by circling the appropriate number from the scale.

	Almost never (0-10%)	Sometimes (11-35%)	About half the time (36-65%)	Most of the time (66-90%)	Almost always (90-100%)
I am clear about my feelings	1	2	3	4	5
I pay attention to how I feel	1	2	3	4	5
I experience my emotions as overwhelming and out of control	1	2	3	4	5
I have no idea how I am feeling	1	2	3	4	5
I have difficulty making sense of my feelings	1	2	3	4	5
I am attentive to my feelings	1	2	3	4	5
I know exactly how I am feeling	1	2	3	4	5
I care about what I am feeling	1	2	3	4	5
I am confused about how I feel	1	2	3	4	5
When I'm upset, I acknowledge my emotions	1	2	3	4	5
When I'm upset, I become angry at myself for feeling that way	1	2	3	4	5
When I'm upset, I become embarrassed for feeling that way	1	2	3	4	5
When I'm upset, I have difficulty getting work done	1	2	3	4	5
When I'm upset, I become out of control	1	2	3	4	5
When I'm upset, I believe that I will remain that way for a long time	1	2	3	4	5
When I'm upset, I believe that I will end up feeling very depressed	1	2	3	4	5
When I'm upset, I believe that my feelings are valid and important	1	2	3	4	5
When I'm upset, I have difficulty focusing on things	1	2	3	4	5
When I'm upset, I feel out of control	1	2	3	4	5
When I'm upset, I can still get things done	1	2	3	4	5
When I'm upset, I feel ashamed with myself for feeling that way	1	2	3	4	5
When I'm upset, I know that I can find a way to eventually feel better	1	2	3	4	5
When I'm upset, I feel like I am weak	1	2	3	4	5
When I'm upset, I feel like I can remain in control of my behaviors	1	2	3	4	5
When I'm upset, I feel guilty for feeling that way	1	2	3	4	5

When I'm upset, I have difficulty concentrating	1	2	3	4	5
When I'm upset, I have difficulty controlling my behaviors	1	2	3	4	5
When I'm upset, I believe there is nothing I can do to make myself feel better	1	2	3	4	5
When I'm upset, I become irritated with myself for feeling that way	1	2	3	4	5
When I'm upset, I start to feel very bad about myself	1	2	3	4	5
When I'm upset, I believe that wallowing in it is all I can do	1	2	3	4	5
When I'm upset, I lose control over my behaviors	1	2	3	4	5
When I'm upset, I have difficulty thinking about anything else	1	2	3	4	5
When I'm upset, I take time to figure out what I'm really feeling	1	2	3	4	5
When I'm upset, it takes me a long time to feel better	1	2	3	4	5
When I'm upset, my emotions feel overwhelming	1	2	3	4	5

The following statements concern how you feel in romantic relationships. **We are interested in how you generally experience relationships, not just in what is happening in a current relationship.** Respond to each statement by indicating how much you agree or disagree with it, from **1 (Strongly Disagree) to 7 (Strongly Agree).**

It helps to turn to my romantic partner in times of need.	1	2	3	4	5	6	7
I need a lot of reassurance that I am loved by my partner.	1	2	3	4	5	6	7
I want to get close to my partner, but I keep pulling back.	1	2	3	4	5	6	7
I find that my partner(s) don't want to get as close as I would like.	1	2	3	4	5	6	7
I turn to my partner for many things, including comfort and reassurance.	1	2	3	4	5	6	7
My desire to be very close sometimes scares people away.	1	2	3	4	5	6	7
I try to avoid getting too close to my partner.	1	2	3	4	5	6	7
I do not often worry about being abandoned.	1	2	3	4	5	6	7
I usually discuss my problems and concerns with my partner.	1	2	3	4	5	6	7
I get frustrated if romantic partners are not available when I need them.	1	2	3	4	5	6	7
I am nervous when partners get too close to me.	1	2	3	4	5	6	7

I worry that romantic partners won't care about me as much as I care about them.	1	2	3	4	5	6	7

While considering your coach that you spend the most time with, using the scale below, please indicate your level of agreement with each statement from ***Very Strongly Disagree (1)*** to ***Very Strongly Agree (7)***

	Very Strongly Disagree	Very Slightly Agree	Slightly Agree	Moderately Agree	Mostly Agree	Strongly Agree	Very Strongly Agree
I don't usually discuss my problems or concerns with my coach	1	2	3	4	5	6	7
I do not turn to my coach for reassurance	1	2	3	4	5	6	7
I avoid discussing personal issues with my coach	1	2	3	4	5	6	7
I do not rely on my coach when I have a problem to solve	1	2	3	4	5	6	7
I do not turn to my coach when I need to get something off my chest	1	2	3	4	5	6	7
I do not ask my coach for advice or help	1	2	3	4	5	6	7
I do not seek out my coach when things go wrong	1	2	3	4	5	6	7
I often wonder if my coach cares about me as an athlete	1	2	3	4	5	6	7
I often worry that my coach does not value me as much as I value him/her	1	2	3	4	5	6	7
I worry a fair amount about my coach leaving me to coach elsewhere	1	2	3	4	5	6	7
I am concerned that my coach will find another athlete that he/she prefers	1	2	3	4	5	6	7
I often worry that my coach does not want to coach me anymore	1	2	3	4	5	6	7
Sometimes I worry that my coach is not as committed to me as I am to them	1	2	3	4	5	6	7
I worry that my coach does not respect me as much as I respect him/her	1	2	3	4	5	6	7

Please rate how well each item describes you using the scale from ***Extremely uncharacteristic of me (1)*** to ***Extremely Characteristic of me (5)***

Given enough provocation, I may hit another person.	1	2	3	4	5
There are people who pushed me so far that we came to blows.	1	2	3	4	5
I have threatened people I know.	1	2	3	4	5
I often find myself disagreeing with people.	1	2	3	4	5
I can't help getting into arguments when people disagree with me.	1	2	3	4	5
My friends say that I'm somewhat argumentative.	1	2	3	4	5
I flare up quickly but get over it quickly.	1	2	3	4	5
Sometimes I fly off the handle for no good reason.	1	2	3	4	5
I have trouble controlling my temper.	1	2	3	4	5
At times I feel I have gotten a raw deal out of life.	1	2	3	4	5
Other people always seem to get the breaks.	1	2	3	4	5
I wonder why sometimes I feel so bitter about things.	1	2	3	4	5

How often do you have a drink containing alcohol?

- a. Never
- b. Monthly or less
- c. 2-4 times a month
- d. 2-3 times a week
- e. 4 or more times a week

How many standard drinks (12oz. beer, 7.5oz. wine, shot of liquor) containing alcohol do you have on a typical day that you drink?

- a. 1 or 2
- b. 3 or 4
- c. 5 or 6
- d. 7 to 9
- e. 10 or more

How often do you have six or more drinks on one occasion?

- a. Never
- b. Less than monthly
- c. Monthly
- d. Weekly
- e. Daily or almost daily

For the following questions, please indicate whether you have experienced the following **during the past year.**

While drinking, I have said or done embarrassing things.	Yes	No
I have had a hangover (headache, sick stomach) the morning after I had been drinking.	Yes	No
I have spent too much time drinking.	Yes	No
I have often found it difficult to limit how much I drink.	Yes	No
I have felt very sick to my stomach or thrown up after drinking.	Yes	No
I have not gone to work or missed classes at school because of drinking, a hangover, or illness caused by drinking.	Yes	No
I have taken foolish risks when I have been drinking	Yes	No
I have been overweight because of my drinking.	Yes	No
I have felt badly about myself because of my drinking.	Yes	No
I have driven a car when I knew I had too much to drink to drive safely.	Yes	No
I often have ended up drinking on nights when I had planned not to drink.	Yes	No
I have passed out from drinking.	Yes	No
My physical appearance has been harmed by my drinking.	Yes	No
I have woken up in an unexpected place after heavy drinking.	Yes	No
I have found that I needed larger amounts of alcohol to feel any effect, or that I could no longer get high or drunk on the amount that used to get me high or drunk.	Yes	No
When drinking, I have done impulsive things I regretted later.	Yes	No
My drinking has created problems between myself and my boyfriend/girlfriend/ spouse, parents, or other near relatives.	Yes	No
I've not been able to remember large stretches of time while drinking heavily	Yes	No
My drinking has gotten me into sexual situations I later regretted.	Yes	No
I have become very rude, obnoxious, or insulting after drinking.	Yes	No
I have had less energy or felt tired because of my drinking.	Yes	No
I have felt like I needed a drink after I'd gotten up (that is, before breakfast).	Yes	No
The quality of my work or school work has suffered because of my drinking.	Yes	No
I have neglected my obligations to family, work, or school because of drinking.	Yes	No

During the past thirty days, on how many days have you used the following? Please select the number corresponding with the amount of use.

	I have never used/done this (1)	I have used this but not in the past 30 days (2)	Once (3)	Twice (4)	3-5 days (5)	6-9 days (6)	10+ days (7)
Cigarettes	1	2	3	4	5	6	7
Smokeless tobacco (e.g. chewing tobacco, snuff, dip, or snus)	1	2	3	4	5	6	7
Marijuana	1	2	3	4	5	6	7
Synthetic cannabinoids (e.g. K2, Spice)	1	2	3	4	5	6	7
Anabolic steroids (e.g. boldenone, nandrolene, stanozolo methasterone)	1	2	3	4	5	6	7
Peptide hormones (e.g. HGH, HCG, THG)	1	2	3	4	5	6	7
Stimulants (e.g. Adderall, Dexedrine, Benzedrine)	1	2	3	4	5	6	7
Energy drinks (e.g. Red Bull, Monster)	1	2	3	4	5	6	7
Dietary supplements (e.g. creatine, DHEA, andro products, protein products)	1	2	3	4	5	6	7
Prescription drugs (other than those that are prescribed to you)	1	2	3	4	5	6	7
Over-the-counter drugs (other than as directed)	1	2	3	4	5	6	7

Please read each statement and circle a number 0, 1, 2, or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any one statement.

The rating scale is as follows:

0 Did not apply to me at all – NEVER
1 Applied to me to some degree, or some of the time – SOMETIMES
2 Applied to me to a considerable degree, or a good part of the time – OFTEN
3 Applied to me very much, or most of the time – ALMOST ALWAYS

	Never	Sometimes	Often	Almost Always
I found it hard to wind down	0	1	2	3
I was aware of dryness of the mouth (in absence of physical exertion)	0	1	2	3
I couldn't seem to experience any positive feeling at all	0	1	2	3
I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in absence of physical exertion)	0	1	2	3
I found it difficult to work up the initiative to do things	0	1	2	3
I tended to over-react to situations	0	1	2	3
I experienced trembling (e.g. in the hands)	0	1	2	3
I felt that I was using a lot of nervous energy	0	1	2	3
I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
I felt that I had nothing to look forward to	0	1	2	3
I found myself getting agitated	0	1	2	3
I found it difficult to relax	0	1	2	3
I felt down-hearted and blue	0	1	2	3
I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
I felt I was close to panic	0	1	2	3
I was unable to become enthusiastic about anything	0	1	2	3
I felt I wasn't worth much as a person	0	1	2	3
I felt that I was rather touchy	0	1	2	3
I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart race increase, heart missing a beat)	0	1	2	3
I felt scared without any good reason	0	1	2	3
I felt that life was meaningless	0	1	2	3

Please indicate how much you agree with each statement using the scale from ***Strongly disagree (1)*** to ***Strongly agree (5)***.

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
My first impressions of people usually turn out to be right.	1	2	3	4	5
It would be hard for me to break any of my bad habits.	1	2	3	4	5
I have not always been honest with myself.	1	2	3	4	5
I always know why I like things.	1	2	3	4	5
Once I've made up my mind, other people can seldom change my opinion.	1	2	3	4	5
It's hard for me to shut off a disturbing thought.	1	2	3	4	5
I never regret my decisions.	1	2	3	4	5
I rarely appreciate criticism.	1	2	3	4	5
I am very confident of my judgments.	1	2	3	4	5
I don't always know the reasons why I do the things I do.	1	2	3	4	5
I sometimes tell lies if I have to.	1	2	3	4	5
I never cover up my mistakes.	1	2	3	4	5
I always obey laws, even if I am unlikely to get caught.	1	2	3	4	5
I have said something bad about a friend behind his or her back.	1	2	3	4	5
When I hear people talking privately, I avoid listening.	1	2	3	4	5
I have received too much change from a salesperson without telling him or her.	1	2	3	4	5
When I was young I sometimes stole things.	1	2	3	4	5
I have done things that I don't tell other people about.	1	2	3	4	5
I never take things that don't belong to me.	1	2	3	4	5
I don't gossip about other people's business.	1	2	3	4	5

Demographic Questionnaire

What is your year in school? (Check one option)

- ☐ 1st year undergraduate
- ☐ 2nd year undergraduate
- ☐ 3rd year undergraduate
- ☐ 4th year undergraduate
- ☐ 5th year or more undergraduate

What is your gender (i.e. male, female, trans, agender, etc.)? _____

What is your age (in years)? _____

How do you usually describe yourself (Check all that apply)?

- ☐ White (Non-Hispanic)
- ☐ Black/African-American/Caribbean
- ☐ Hispanic or Latino/a
- ☐ American Indian, Alaska Native, or Native Hawaiian
- ☐ Asian or Pacific Islander
- ☐ Biracial or multiracial
- ☐ Other

Estimated approximate cumulative grade point average (GPA):

- ☐ 3.5 or greater
- ☐ 3.0 to 3.5
- ☐ 2.5 to 3.0
- ☐ 2.0 to 2.5
- ☐ 2.0 or less
- ☐ Unknown

What is the highest level of formal education attained by your parents?

Check one box in each column	**Mother**	**Father**
High school or less		
Some college		
College degree		
Some graduate school		
Graduate degree		
Unknown		

Are you an NCAA Division I eligible athlete (circle one) Yes No

Is your sport currently "in season" or "out of season?"

- ☐ In season
- ☐ Out of season

Length of relationship with the coach you spend the most time with as described in the Coach-Athlete Attachment Scale (if applicable)

- ☐ Under 1 year
- ☐ 1-2 years
- ☐ 2-3 years
- ☐ 3-4 years
- ☐ More than 4 years
- ☐ Not applicable

If you responded "Yes" to "Are you an NCAA Division I eligible athlete," indicate if you participate in a contact (basketball, soccer) or non-contact (baseball, softball, volleyball, track and field, golf, cross country, tennis) sport

- ☐ Contact
- ☐ Non-Contact

APPENDIX E

ADDITIONAL ANALYSES

STUDENT-ATHLETE AND NON-ATHLETE STUDENT COMPARISON

In addition to the development of a model of student-athlete mental health based on emotion regulation and coach-athlete attachment, a preliminary comparison of aggression, alcohol use, and psychological distress across gender and athletic status was performed. To do so, the researcher collected survey data from non-athlete students in undergraduate classes of the Counseling and Educational Development (n = 6) and Kinesiology departments (n = 1) at one university in the Southeastern United States. Research Question: Do male student-athletes, female student-athletes, male non-athlete students and female non-athlete students exhibit significantly different levels of aggression, alcohol use intensity, alcohol use consequences, and psychological distress? Hypothesis: Male and female student-athletes will exhibit significantly greater levels of aggression, alcohol use intensity, alcohol use consequences, and psychological distress than non-athlete students. Male and female student-athletes will not exhibit significantly different levels of aggression, alcohol use intensity, alcohol use consequences, or psychological distress.

G*Power, a power analysis program, was used to determine the appropriate sample size for the comparative analysis (MANOVA) involving groups of student-athletes and non-athlete students by gender. In order to guarantee a medium effect size (0.25) and high power (0.80) with an alpha of 0.05, a sample size of at least 100

participants will be needed. Four groups (male athlete, male non-athlete, female athlete, and female non-athlete) with a target of at least 25 participants per group were used to determine differences in aggression, alcohol use intensity, alcohol use consequences, and psychological distress based on group association. No additional student-athletes were surveyed to run the group comparison due to the large number sampled for the path analysis in the full dissertation study.

Procedures

A 2 x 2 factorial MANOVA was conducted to determine differences in group means on mental health factors based on gender and athletic status. The two-way MANOVA analysis allows the researcher to identify differences in means of multiple dependent variables across two independent variables. In this case, a MANOVA was used to analyze differences in the amount of aggression, alcohol use intensity, alcohol use consequences, and alcohol use that male athletes, female athletes, male non-athlete students, and female non-athlete students' experience. The researcher will look for significantly higher means on scales associated with each mental health outcome to determine differences across gender and athletic status.

Data Analysis

To assess whether male and female non-athletes and Division I student-athletes experience different levels of aggression, alcohol use intensity and consequences, and psychological distress, and whether there was an interaction between gender and athletic status, a multivariate analysis of variance was performed. To address significance of the Box's Test of Equality of Covariance Matrices, square root transformations for the

BPAQ-SF, BYAACQ, and DASS-21 total scores and a log 10 transformation of the AUDIT-C total score was performed. Following transformation of variables, Box's M was not significant (*Box's M* = 44.411, $p = .07$); therefore, the assumption of homogeneity of covariances across groups utilized in the multivariate analysis is assumed to be held true.

The MANOVA was run and results were tabulated in Table 26. The interaction between gender and athletic status was not significant, Wilks' $\Lambda = .994$, $F(4,225) = .353$, $p = .842$. Observed power was very low for the interaction (.130), which subjects the interaction term to a high probability of Type II error and may explain why the interaction was not found to be statistically significant. The main effect for gender, Wilks' $\Lambda = .883$, $F(4,225) = 7.479$, $p = .000$, was statistically significant with high power (.997). As a result, one can conclude that the linear composite of aggression, alcohol use intensity and consequences, and psychological distress differs based on gender. Additionally, the main effect for athletic status, Wilks' $\Lambda = .939$, $F(4,225) = 3.685$, $p = .006$ was statistically significant with high power (.878). The linear composite of the dependent variables also differs based on one's identity as a student-athlete or non-athlete student.

Table 26

Results of the Multivariate Analysis of Variance

	Effect	Value	F	Significance	Partial Eta Squared	Observed Power
Athletic Status	Wilks' Lambda	.939	3.685	.006	.061	.878
Gender	Wilks' Lambda	.883	7.479	.000	.117	.997
Gender x Athletic Status	Wilks' Lambda	.994	.353	.842	.006	.130

Follow-up univariate ANOVAs were also performed upon observing statistically significant main effects for gender and athletic status. The only significant dependent variable based on athletic status was alcohol use intensity, $F(1) = 13.755$, $p = .000$. The high observed power encourages the researcher to trust the significant test even though the effect size is moderately low (eta = .238). Student-athletes, regardless of gender, reported higher alcohol use intensity (see Tables 27 and 28).The two dependent variables responsible for a significant direct effect based on gender were alcohol use intensity, $F(1) = 13.667$, $p = .000$, and aggression, $F(1) = 7.242$, $p = .008$. A closer look at mean scores on the AUDIT-C and BPAQ-SF shows that males reported higher levels of alcohol use intensity and aggression (see Table 28).

Table 27

Univariate Followups to the Multivariate Analysis of Variance

	DV	F	Significance	Partial Eta Squared	Observed Power
Athletic	AUDIT-C	13.755	.000	.057	.958
Status	Sqrt_BPAQ-SF*	.001	.980	.000	.050
	Sqrt_BYAACQ*	.798	.373	.003	.144
	Sqrt_DASS-21*	.113	.737	.000	.063
Gender	AUDIT-C	13.667	.000	.057	.957
	Sqrt_BPAQ-SF*	7.242	.008	.031	.764
	Sqrt_BYAACQ*	1.624	.204	.007	.245
	Sqrt_DASS-21*	2.661	.104	.012	.369
Gender x	AUDIT-C	.340	.560	.001	.089
Athletic	Sqrt_BPAQ-SF*	.001	.976	.000	.050
Status	Sqrt_BYAACQ*	.232	.631	.001	.077
	Sqrt_DASS-21*	.461	.498	.002	.104

Table 28

Means and Standard Deviations for Aggression, Alcohol Use intensity, Alcohol Use Consequences, and Psychological Distress as a Function of Athletic Status and Gender

		AUDIT-C	BPAQ	BYAACQ	DASS-21
Group	*n*	*M*(*SD*)	*M*(*SD*)	*M*(*SD*)	*M*(*SD*)
Student-Athletes					
Male	49	3.92 (3.63)	25.67 (9.80)	5.08 (6.08)	11.69 (13.84)
Female	138	3.24 (2.31)	22.07 (9.06)	4.59 (5.02)	10.79 (10.25)
Non-Athlete Students					
Male	25	3.00 (2.00)	25.24 (8.55)	4.48 (4.15)	8.84 (7.18)
Female	88	2.07 (1.99)	21.89 (8.38)	3.85 (3.78)	11.17 (10.23)

One significant limitation of the prior analysis is that individuals who abstain from alcohol use were not separated out when analyzing data related to alcohol use intensity and alcohol-related consequences. In the previously described 2x2 MANOVA, a

considerable number of male student-athletes (37.5%), female student-athletes (30.5%), male non-athletes (24.0%), and female non-athletes (67.0%) reported abstinence from alcohol use as evidenced by total scores of 0 on both the AUDIT-C and BYAACQ measures. As performed in DeMartini and Carey's (2012) study of the AUDIT-C, abstainers were removed from the participant sample prior to comparisons of alcohol use by gender and athletic status.

Upon running the initial multivariate analysis of variance, the researcher checked the assumption of homogeneity of covariances by checking for significance on Box's Test of Equality of Covariance Matrices (see Table 29). Without transformations, Box's M was significant (18.433, p = .000). A log 10 transformation was performed on the AUDIT-C and a square root transformation of the BYAACQ resulted in a non-significant Box's M, and thus, no significant differences between the covariance matrices. Levene's Test of Equality of Error Variances resulted in non-significant F-values for both dependent variables, and thus the assumption of homogeneity of variances is valid (Table 30).

Table 29

Box's Test of Equality of Covariance Matrices

	Without Transformations	With Transformations
Box's M	32.380	10.523
F	3.499	1.137
Df Between	9	9
Df Within	36786.366	36786.366
Significance	.000	.332

*Note. *p < .05*

Table 30

Levene's Test of Equality of Error Variances

	F	df Between	df Within	Significance
Log10_AUDIT-C*	2.617	3	202	.052
Sqrt_BYAACQ*	1.508	3	202	.214

Note: Log10_AUDIT-C = Log 10 Transofmration of the Alcohol Use Disorder Identification – Consumption; Sqrt_BYAACQ = Square Root Transformation of the Brief Young Adult Alcohol Consequence Questionnaire

The results of the two-way multivariate analysis of variance are described in Table 31. The interaction between gender and athletic status was not significant, Wilks' Λ = .995, $F(2,201)$ = ..549, p = .578. Observed power was low for the interaction (.150), which could suggest Type II error kept the null hypothesis from being rejected. The main effect for gender, Wilks' Λ = .955, $F(2,201)$ = 4.693, p = .010, was statistically significant and displayed adequately high power (.783). Therefore, the researcher concluded that the linear composite of alcohol use intensity and alcohol use consequences, differs based on gender. The main effect for athletic status was also statistically significant, Wilks' Λ = .928, $F(2,201)$ = 7.742, p = .001, with high power (.948). The linear composite of alcohol use intensity and alcohol use consequences also differs based on one's identity as a student-athlete or non-athlete student.

Table 31

Results of the Multivariate Analysis of Variance

	Effect	Value	F	Sig.	Partial Eta Squared	Observed Power
Athletic Status	Wilks' Lambda	.928	7.742	.001	.072	.948

Table continues

	Effect	Value	F	Sig.	Partial Eta Squared	Observed Power
Gender	Wilks' Lambda	.955	4.693	.010	.045	.783
Gender x Athletic Status	Wilks' Lambda	.995	.549	.548	.005	.140

*U*nivariate ANOVAs were performed as follow-ups to the multivariate analysis (see Table 32). Significant differences in alcohol use intensity were found across gender, $F(1) = 9.383$, p = .002. Although the effect size was low (eta = 21.0%), the high power (.948) associated with the ANOVA improved the analysis. In addition, significant differences in alcohol use intensity and alcohol use consequences were found across athletic status. The significant F-statistics for alcohol use intensity, $F(1) = 14.963$, p = .000, and alcohol use consequences, $F(1) = 4.793$, p = .030, are an indication that follow-ups were confirmed as an appropriate strategy to clearly understand the differences and direction on these variables across athletic status.

Table 32

Univariate Follow-ups to the Multivariate Analysis of Variance

	DV	F	Significance	Partial Eta Squared	Observed Power
Gender	Log_10 AUDIT-C	9.383	.002	.044	.968
	Sqrt_BYAACQ	1.588	.209	.008	.586
Athletic Status	Log_10 AUDIT-C	14.693	.000	.068	.862
	Sqrt_BYAACQ	4.793	.030	.023	.241
Gender * Athletic Status	Log_10 AUDIT-C	.037	.848	.000	.054
	Sqrt_BYAACQ	.818	.367	.004	.147

Note: Log10_AUDIT-C = Log 10 Transofmration of the Alcohol Use Disorder Identification – Consumption; Sqrt_BYAACQ = Square Root Transformation of the Brief Young Adult Alcohol Consequence Questionnaire

Among drinkers for the sample, mean levels of alcohol use intensity and number of alcohol use consequences experienced in the past year were higher for male student-athletes and non-athletes (see Table 33). Further, student-athletes reported higher levels of alcohol use intensity and a greater number of alcohol use consequences than non-athlete students regardless of gender.

Table 33

Means and Standard Deviations for Alcohol Use intensity and Alcohol Use Consequences Among Drinkers as a Function of Athletic Status and Gender

		AUDIT-C	BYAACQ
Group	*n*	*M*(*SD*)	*M*(*SD*)
Student-Athletes			
Male	30	5.93 (3.05)	8.20 (5.92)
Female	98	4.19 (1.91)	6.46 (4.85)
Non-Athlete Students			
Male	19	3.74 (1.48)	5.74 (3.96)
Female	59	2.98 (1.81)	5.34 (3.47)
Totals			
Student-Athlete	128	4.60 (2.34)	6.87 (5.15)
Non-Athlete Student	78	3.17 (1.76)	5.44 (3.57)
Male	49	5.08 (2.76)	7.24 (5.34)
Female	157	3.74 (1.96)	6.04 (4.40)

Limitations

Several limitations exist for the comparison study. First, non-athlete student participants were only sampled from two academic departments and thus do not fully characterize a representative sample of non-athlete students the participating university. Furthermore, the participants were from one Southeastern University, making generalizability of the sample limited. As evidenced by the low power associated with the

multivariate analyses, a larger sample of male non-athlete students and male student-athletes would improve the study greatly. The follow-up analysis of drinkers and alcohol use patterns did not meet the requirements set by the G*Power power analysis program. A similar study would require several more non-athlete males. Researchers performing a similar study should also consider surveying similar numbers of individuals per group, as this affected the Box's and Levene's Tests associated with homogeneity of covariance and error variance. On the same note, Levene's Test was significant for the AUDIT-C and DASS-21 in the MANOVA incorporating all dependent variables, which may have significantly altered the analysis. Finally, student-athletes responded in a socially desirable manner to items related to alcohol use consequences and psychological distress ($p < .01$), as evidenced by multivariate analysis of the BIDR and the dependent variables that was performed in the full study. Finally, the results of these analyses are preliminary. A future study may require a more rigorous methodology in which student-athletes and non-athlete students are paired based on demographic data to provide the most accurate comparison.